

Report No.

**FIRE SAFETY ANALYSIS  
OF THE  
POLAR ICEBREAKER REPLACEMENT DESIGN**

**VOLUME III - PART II**

**BY**

**ROBERT C. RICHARDS**

**U.S. COAST GUARD  
MARINE TECHNICAL & HAZARDOUS MATERIALS DIVISION**

**Marine Fire and Safety Research Staff  
Avery Point, Groton, CT 06340 - 6096**

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# Technical Report Documentation Page

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16. Abstract This report documents the developmental application of the Ship Fire Safety Engineering Method (SFSEM) to the fire safety analysis of the Polar Icebreaker Replacement (PIR) design. The passive and active fire protection were analyzed in the integrated framework provided by SFSEM for every compartment on the PIR. Conventional fire protection engineering was employed whenever information necessary for SFSEM was not available. Recommendations for alternative solutions to fire safety discrepancies and guidelines for fire protection systems on the PIR are provided.  Five levels of fire protection were found in the PIR design. Passive fire protection is the most significant factor in meeting the fire safety objectives. The major improvement recommended for passive fire protection is to subdivide the boiler room. Refinements are recommended for Active Fire Protection systems but the most significant recommendation is for improved and integrated automatic fire detection. With these changes the fire safety of every compartment is well within the fire safety objectives established. Smoke control was identified as the area where the most significant gains could be made in fire protection and life safety.  The Ship Fire Safety Engineering Method proved to be an effective method for integrating the five levels of fire protection on the PIR. An extensive data base was developed which will greatly facilitate future ship fire safety analyses. Output from SFSEM would be very useful in damage control planning. <i>Volume 3</i>  This report is presented in three volumes. Volume I presents the recommended improvements to the PIR and the analysis which lead to them. Volume II presents the data necessary to conduct the analysis, and Volume III presents fire safety summaries for each compartment and its barriers. <i>Keywords: fire; fire; fire;</i> <i>fire; fire; fire; fire; fire;</i>			
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# METRIC CONVERSION FACTORS

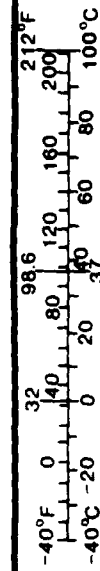
## Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (WEIGHT)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft <sup>3</sup>	cubic feet	0.03	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.76	cubic meters	m <sup>3</sup>
<b>TEMPERATURE (EXACT)</b>				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

\*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures. Price \$2.25. SD Catalog No. C13.10.286.

## Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
<b>AREA</b>				
cm <sup>2</sup>	square centimeters	0.16	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	1.2	square yards	yd <sup>2</sup>
km <sup>2</sup>	square kilometers	0.4	square miles	mi <sup>2</sup>
ha	hectares (10,000 m <sup>2</sup> )	2.5	acres	
<b>MASS (WEIGHT)</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
<b>VOLUME</b>				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	0.125	cups	c
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m <sup>3</sup>	cubic meters	35	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.3	cubic yards	yd <sup>3</sup>
<b>TEMPERATURE (EXACT)</b>				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F





I - A percentage which represents the probability that the fire will terminate itself

A - A percentage which represents the probability that the fire will be suppressed by an automated system.

M - A percentage which represents the probability that the fire will be suppressed manually (by damage control teams).

FRI Time - The time when the compartment as room of origin reaches Full Room Involvement or Flashover measured from the time it has reached Established Burning.

Mat ID - A code indicating the type of material composing the barrier. Types include:

W0	Zero strength bulkhead
W1	Expanded metal "screening"
W2	Nomex honeycomb core panel-plastic laminate both sides
W3	Nomex honeycomb core panel-stainless steel both sides
W4	Nomex honeycomb core panel-plastic laminate & thermal insulation
W5	Steel joiner
W6	Structural steel
W7	Steel joiner with thermal insulation
W8	Structural steel with thermal insulation
F0	Zero strength deck
F1	Aluminum grating
F2	Steel grating
F3	Steel deck
F4	Steel deck with poured floor or tile (1/4" thick)
C0	Zero strength overhead
C1	Aluminum grating
C2	Steel grating
C3	Steel deck
C4	Steel overhead with poured floor or tile (1/4" thick)

D/H - The number of doors or hatches in the barrier.

Thar - The propensity for failure of the barrier through a thermal failure. The Thar value, range 0-300, represents the number of 1000's BTU's that the barrier can withstand.

Dbar - The propensity for failure of the barrier through a durability failure. The Dbar value, range 0-300, represents the number of 1000's BTU's that the barrier can withstand.

% Heat Rel - The percentage of residual heat which would be transferred from one room to the next if the barrier has a durability failure

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-028-0-K FLAMMABLE LIQUIDS STOREROOM

---

USE: K Stowage of chemicals/dangerous materials; not gas and oil

AREA: 576 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 7,488 cu.ft.

UNACCEPTABLE LOSS: Code 1 (Fire reaches established burning.)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0015

FUEL LOAD: 9,888 BTUs/sq.ft.

Misc. Class A - Assumes several cans fail

VENTILATION: 1,872 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	5	2	85	10
Tbar Failure	I	20	2	25	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 0% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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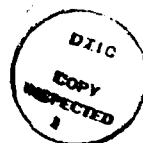
**BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)**

Compartment: 1-028-0-K

**FLAMMABLE LIQUIDS STOREROOM**

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-4-0-A	STOREROOM	W6	1	261.3	10	100	5
1-4-2-Q	BOW BOOM INSTRUMENT ROOM	W6	0	261.3	10	100	5
2-014-0-W	PEAK TANK	F3	0	189.9	25	300	5
2-4-0-A	STOREROOM	F3	0	2.4	25	300	5
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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-4-0-A                      STOREROOM

---

USE: AS    Storerooms

AREA: 611 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 7,945 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 2,080,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 1,589 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 2000 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	6	0	50
Tbar Failure	I	20	6	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-4-0-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-028-0-K	FLAMMABLE LIQUIDS STORERO	W6	1	261.3	10	100	5
1-22-0-Q	ANCHOR WINDLASS MACHINERY	W2	0	371.8	25	40	30
1-22-0-Q	ANCHOR WINDLASS MACHINERY	W2	1	371.8	25	40	30
1-4-2-Q	BOW BOOM INSTRUMENT ROOM	W2	0	104.0	25	40	30
1-4-2-Q	BOW BOOM INSTRUMENT ROOM	W2	1	314.6	25	40	30
2-22-0-A	STOREROOM	F3	0	5.8	25	300	5
2-4-0-A	STOREROOM	F3	0	395.8	25	300	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-4-2-Q      BOW BOOM INSTRUMENT ROOM

---

USE: Q    Areas usually unoccupied:    engineering, electronics, galleys

AREA: 169 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 2,197 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 16,000 BTUs/sq.ft.

VENTILATION: 1,098 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	6	0	20
Tbar Failure	I	15	6	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 50% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-4-2-Q

BOW BOOM INSTRUMENT ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-028-0-K	FLAMMABLE LIQUIDS STORERO	W6	0	261.3	10	100	5
1-4-0-A	STOREROOM	W2	0	104.0	25	40	30
1-4-0-A	STOREROOM	W2	1	314.6	25	40	30
2-4-0-A	STOREROOM	F3	0	96.5	25	300	5
		--					
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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-22-0-Q ANCHOR WINDLASS MACHINERY ROOM

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 1609 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 20,920 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0110

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 2,092 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	80	10
Tbar Failure	I	100	999	30	20
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-22-0-Q

ANCHOR WINDLASS MACHINERY ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-4-0-A	STOREROOM	W2	0	371.8	25	40	30
1-4-0-A	STOREROOM	W2	1	371.8	25	40	30
1-49-0-Q	FAN ROOM	W6	0	101.4	10	100	5
1-49-0-Q	FAN ROOM	W6	0	105.3	10	100	5
1-49-1-LP	PASSAGE	W2	0	61.1	25	40	30
1-49-2-LP	PASSAGE	W2	1	98.8	25	40	30
1-49-4-A	STOREROOM	W2	0	302.9	25	40	30
1-49-5-Q	REEFER MACHINERY ROOM	W2	0	340.6	25	40	30
2-22-0-A	STOREROOM	F3	1	1264.8	25	300	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-49-0-Q FAN ROOM

---

USE: QF Fan Rooms

AREA: 236 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 3,070 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 1,535 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	20
Tbar Failure	I	100	999	0	50
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 0% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-49-0-Q

FAN ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-22-0-Q	ANCHOR WINDLASS MACHINERY	W6	0	101.4	10	100	5
1-22-0-Q	ANCHOR WINDLASS MACHINERY	W6	0	105.3	10	100	5
1-4S-1-LP	PASSAGE	W6	1	240.5	10	100	5
1-49-2-LP	PASSAGE	W6	0	247.0	10	100	5
1-52-0-LP	PASSAGE	W6	0	182.0	10	100	5
2-22-0-A	STOREROOM	F3	0	1.3	25	300	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	234.9	25	300	5

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1

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-49-1-LP      PASSAGE

-----

USE: LP      Passageways

AREA: 437 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 5,683 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 1,136 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 750 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-49-1-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-0-LP	PASSAGE	W6	0	117.0	10	100	5
1-100-1-TS	STAIRCASE	W6	0	78.0	10	100	5
1-100-3-LP	PASSAGE	W6	1	52.0	10	100	5
1-100-5-LL	CREW MESS	W6	0	253.5	10	100	5
1-22-0-Q	ANCHOR WINDLASS MACHINERY	W2	0	61.1	25	40	30
1-49-0-Q	FAN ROOM	W6	1	240.5	10	100	5
1-49-3-A	FROZEN STOREROOM NO.1	W2	0	221.0	25	40	30
1-49-5-Q	REEFER MACHINERY ROOM	W2	1	80.6	25	40	30
1-49-7-U	VOID SPACE	W6	0	74.1	10	100	5
1-52-0-LP	PASSAGE	W2	2	468.0	25	40	30
1-61-1-A	THAW STOREROOM	W2	1	195.0	25	40	30
1-81-1-A	FROZEN STOREROOM NO.2	W2	0	195.0	25	40	30
1-81-1-A	FROZEN STOREROOM NO.2	W6	0	377.0	10	100	5
2-22-0-A	STOREROOM	F3	0	1.2	25	300	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	372.3	25	300	5
2-65-1-Q	ENGINEERING STOREROOM	F3	0	60.6	25	300	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-49-2-LP      PASSAGE

---

USE: LP    Passageways

AREA: 533 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 6,929 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 1,385 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 1125 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
	I	Time		
Fire Origin	95	20	0	40
Tbar Failure	80	20	0	60
Dbar Failure	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-49-2-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-0-LP PASSAGE	W6	0	195.0	10	100	5
1-100-2-LP PASSAGE	W6	1	52.0	10	100	5
1-22-0-Q ANCHOR WINDLASS MACHINERY	W2	1	98.8	25	40	30
1-49-0-Q FAN ROOM	W6	0	247.0	10	100	5
1-49-4-A STOREROOM	W2	2	286.0	25	40	30
1-52-0-LP PASSAGE	W2	2	468.0	25	40	30
1-64-2-A DRY PROVISION STOREROOM	W6	0	162.5	10	100	5
1-64-2-A DRY PROVISION STOREROOM	W2	2	325.0	25	40	30
1-89-2-Q0 COMMISSARY OFFICE	W2	1	143.0	25	40	30
2-49-0-AA SCIENCE STORAGE--UPPER CA	F3	1	532.2	25	300	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-49-3-A FROZEN STOREROOM NO.1

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USE: AR Refrigerated Storage Spaces

AREA: 429 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 5,580 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,200,000 BTUs/sq.ft.

VENTILATION:	cu ft/min	EXCHANGE TIME:	min.
VENT AREA:	sq.in.	VENT HEIGHT:	0 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		

---

Fire Origin	I	60	999	0	0
Tbar Failure	I	50	999	0	0
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-49-3-A

FROZEN STOREROOM NO.1

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-49-1-LP	PASSAGE	W2	0	221.0	25	40	30
1-49-5-Q	REEFER MACHINERY ROOM	W6	0	314.6	10	100	5
1-49-7-U	VOID SPACE	W6	0	222.3	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	171.5	25	300	5
2-49-1-A	SEA BAG LOCKER	F3	0	24.3	25	300	5
2-61-1-M	SMALL ARMS & DEM MAG	F3	0	131.4	25	300	5
2-65-1-Q	ENGINEERING STOREROOM	F3	0	78.8	25	300	5
		--					
		0					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-49-4-A                      STOREROOM

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USE: AS    Storerooms

AREA: 701 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 9,122 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 2,080,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 1,824 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 2000 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	6	0	50
Tbar Failure	I	20	6	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-49-4-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-22-0-Q	ANCHOR WINDLASS MACHINERY	W2	0	302.9	25	40	30
1-49-2-LP	PASSAGE	W2	2	286.0	25	40	30
1-64-2-A	DRY PROVISION STOREROOM	W6	0	364.0	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	486.5	25	300	5
2-65-2-C	FORWARD REPAIR NO.3	F3	0	50.1	25	300	5
		--					
			2				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-49-5-Q REEFER MACHINERY ROOM

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 319 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 4,157 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0033

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 2,078 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	20
Tbar Failure	I	100	999	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 1% of time in port and 1% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-49-5-Q

REEFER MACHINERY ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-22-0-Q	ANCHOR WINDLASS MACHINERY	W2	0	340.6	25	40	30
1-49-1-LP	PASSAGE	W2	1	80.6	25	40	30
1-49-3-A	FROZEN STOREROOM NO.1	W6	0	314.6	10	100	5
1-49-7-U	VOID SPACE	W6	0	32.5	10	100	5
2-22-0-A	STOREROOM	F3	0	3.3	25	300	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	70.9	25	300	5
2-49-1-A	SEA BAG LOCKER	F3	0	143.7	25	300	5
2-61-1-M	SMALL ARMS & DEM MAG	F3	0	2.3	25	300	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-52-0-LP      PASSAGE

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USE: LP      Passageways

AREA: 504 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 6,552 cu.ft.

UNACCEPTABLE LOSS: Code B (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 1,310 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 500 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-52-0-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-0-LP PASSAGE	W6	0	182.0	10	100	5
1-49-0-Q FAN ROOM	W6	0	182.0	10	100	5
1-49-1-LP PASSAGE	W2	2	468.0	25	40	30
1-49-2-LP PASSAGE	W2	2	468.0	25	40	30
2-49-0-AA SCIENCE STORAGE--UPPER CA	F3	1	465.5	25	300	5
2-95-2-Q FWD IC/GYRO ROOM	F3	0	38.5	25	300	5
	--					
		5				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-61-1-A THAW STOREROOM

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USE: AR Refrigerated Storage Spaces

AREA: 112 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,463 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,200,000 BTUs/sq.ft.

VENTILATION: cu ft/min EXCHANGE TIME: min.  
VENT AREA: sq.in. VENT HEIGHT: 0 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	60	999	0	0
Tbar Failure	I	50	999	0	0
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-61-1-A

THAW STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-49-1-LP	PASSAGE	W2	1	195.0	25	40	30
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	112.6	25	300	5
		--	1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-61-3-A CHILL STOREROOM

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USE: AR Refrigerated Storage Spaces

AREA: 288 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 3,744 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,200,000 BTUs/sq.ft.

VENTILATION:	cu ft/min	EXCHANGE TIME:	min.
VENT AREA:	sq.in.	VENT HEIGHT:	0 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	60	999	0	0
Tbar Failure	I	50	999	0	0
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-61-3-A

CHILL STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-49-7-U	VOID SPACE	W6	0	195.0	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	70.3	25	300	5
2-65-1-Q	ENGINEERING STOREROOM	F3	0	217.0	25	300	5
		--					
			0				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-64-2-A DRY PROVISION STOREROOM

USE: AS Storerooms

AREA: 725 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 9,425 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 2,080,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 1,570 cu ft/min

EXCHANGE TIME: 6.0 min.

VENT AREA: 2000 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	6	0	50
Tbar Failure	I	20	6	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-64-2-A

DRY PROVISION STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-49-2-LP	PASSAGE	W6	0	162.5	10	100	5
1-49-2-LP	PASSAGE	W2	2	325.0	25	40	30
1-49-4-A	STOREROOM	W6	0	364.0	10	100	5
1-89-2-QO	COMMISSARY OFFICE	W2	0	104.0	25	40	30
1-89-4-A	SODA STORAGE 1000 CASES	W2	1	123.5	25	40	30
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	276.5	25	300	5
2-65-2-C	FORWARD REPAIR NO.3	F3	0	368.0	25	300	5
		--					
			3				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-81-1-A FROZEN STOREROOM NO.2

USE: AR Refrigerated Storage Spaces

AREA: 423 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 5,509 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,200,000 BTUs/sq.ft.

VENTILATION: cu ft/min EXCHANGE TIME: min.  
VENT AREA: sq.in. VENT HEIGHT: 0 in.

FIRE STARTED DUE TO:

	I	I	FRI Time	A	M
Fire Origin	1	60	999	0	0
Tbar Failure	1	50	999	0	0
Dbar Failure	1	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-81-1-A

FROZEN STOREROOM NO.2

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-49-1-LP	PASSAGE	W2	0	195.0	25	40	30
1-49-1-LP	PASSAGE	W6	0	377.0	10	100	5
1-49-7-U	VOID SPACE	W6	0	196.3	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	211.0	25	300	5
2-65-1-Q	ENGINEERING STOREROOM	F3	0	212.8	25	300	5
		--					
		0					

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-89-2-Q0 COMMISSARY OFFICE

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USE: Q0 Offices

AREA: 88 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,144 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 190 cu ft/min  
VENT AREA: 175 sq.in.

EXCHANGE TIME: 6.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-89-2-Q0

COMMISSARY OFFICE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-4-LW	WR & SHR	W6	0	61.1	10	100	5
1-100-6-Q	SHIP LIBRARY	W6	0	42.9	10	100	5
1-49-2-LP	PASSAGE	W2	1	143.0	25	40	30
1-64-2-A	DRY PROVISION STOREROOM	W2	0	104.0	25	40	30
1-89-4-A	SODA STORAGE 1000 CASES	W2	0	143.0	25	40	30
2-49-0-AA	SCIENCE STORAGE--UPPER CA	F3	0	9.0	25	300	5
2-65-2-C	FORWARD REPAIR NO.3	F3	0	79.0	25	300	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-89-4-A SODA STORAGE 1000 CASES

USE: AS Storerooms

AREA: 110 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,430 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 2,080,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 286 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 500 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	10	0	30
Tbar Failure	I	20	10	0	20
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 15% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-89-4-A

SODA STORAGE 1000 CASES

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-6-Q	SHIP LIBRARY	W6	0	136.5	10	100	5
1-64-2-A	DRY PROVISION STOREROOM	W2	1	123.5	25	40	30
1-89-2-Q0	COMMISSARY OFFICE	W2	0	143.0	25	40	30
2-65-2-C	FORWARD REPAIR NO.3	F3	0	89.4	25	300	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-100-0-LP      PASSAGE

---

USE: LP      Passageways

AREA: 268 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 3,485 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 697 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 375 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-100-0-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-1-TS STAIRCASE	W5	0	78.0	5	80	5
1-100-1-TS STAIRCASE	W5	0	188.5	5	80	5
1-100-2-LP PASSAGE	W2	1	91.0	25	40	30
1-100-3-LP PASSAGE	W2	1	45.5	25	40	30
1-105-0-Q GALLEY	W3	1	26.0	25	60	25
1-105-0-Q GALLEY	W3	0	33.8	25	60	25
1-105-0-Q GALLEY	W3	0	169.0	25	60	25
1-105-0-Q GALLEY	W3	0	408.2	25	60	25
1-119-1-Q SCULLERY	W3	0	130.0	25	60	25
1-49-1-LP PASSAGE	W6	0	117.0	10	100	5
1-49-2-LP PASSAGE	W6	0	195.0	10	100	5
1-52-0-LP PASSAGE	W6	0	182.0	10	100	5
2-100-0-LP PASSAGE	F3	0	1.0	25	300	5
2-100-1-L CREW BERTHING	F3	0	150.0	25	300	5
2-100-2-L CREW BERTHING	F3	0	115.1	25	300	5
2-105-1-TS STAIRCASE	F3	0	2.0	25	300	5
01-100-0-LL WARDROOM & LOUNGE	C3	0	229.0	10	100	5
01-100-2-LP PASSAGE	C3	0	25.1	10	100	5
01-114-1-LP PASSAGE	C3	0	14.0	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-100-1-TS STAIRCASE

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USE: TS Staircases

AREA: 87 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,131 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 226 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
			Time		
Fire Origin		100	999	0	30
Tbar Failure		100	999	0	40
Dbar Failure		90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-100-1-TS STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-100-0-LP	PASSAGE	W5	0	78.0	5	80	5
1-100-0-LP	PASSAGE	W5	0	188.5	5	80	5
1-100-3-LP	PASSAGE	W5	1	188.5	5	80	5
1-49-1-LP	PASSAGE	W6	0	78.0	10	100	5
2-100-0-LP	PASSAGE	F3	0	29.0	25	300	5
2-100-3-A	GEAR LOCKER	F3	0	22.0	25	300	5
2-105-1-TS	STAIRCASE	F3	1	36.0	25	300	5
01-100-1-TS	STAIRCASE	C3	1	87.0	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-100-2-LP      PASSAGE

-----

USE: LP      Passageways

AREA: 245 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 3,187 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD:                      0 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION:            637 cu ft/min            EXCHANGE TIME:            5.0 min.  
VENT AREA: 1125 sq.in.            VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-100-2-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-0-LP PASSAGE	W2	1	91.0	25	40	30
1-100-4-LW WR & SHR	W3	1	65.0	25	60	25
1-100-6-Q SHIP LIBRARY	W2	1	247.0	25	40	30
1-105-0-Q GALLEY	W3	1	497.9	25	60	25
1-124-2-LL CPO MESSROOM & LOUNGE	W2	2	484.9	25	40	30
1-145-2-TS STAIRCASE	W5	1	208.0	5	80	5
1-162-2-LP PASSAGE	W6	1	52.0	10	100	5
1-49-2-LP PASSAGE	W6	1	52.0	10	100	5
2-100-0-LP PASSAGE	F3	0	166.6	25	300	5
2-100-2-L CREW BERTHING	F3	0	40.0	25	300	5
2-121-4-L CREW BERTHING	F3	0	38.6	25	300	5
01-100-2-LP PASSAGE	C3	0	97.2	10	100	5
01-100-4-L CPO BERTHING	C3	0	20.0	10	100	5
01-106-2-LW WR WC & SHR	C3	0	32.0	10	100	5
01-113-2-L CPO BERTHING	C3	0	12.0	10	100	5
01-117-2-LW WR WC & SHR	C3	0	36.0	10	100	5
01-125-2-LW WR WC & SHR	C3	0	32.0	10	100	5
01-125-4-L CPO BERTHING	C3	0	16.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-100-3-LP      PASSAGE

-----

USE: LP      Passageways

AREA: 245 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 3,187 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 637 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 1125 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-100-3-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-0-LP PASSAGE	W2	1	45.5	25	40	30
1-100-1-TS STAIRCASE	W5	1	188.5	5	80	5
1-100-5-LL CREW MESS	W2	2	796.9	25	40	30
1-119-1-Q SCULLERY	W3	1	182.0	25	60	25
1-132-1-Q INCINERATOR ROOM	W2	1	172.9	25	40	30
1-145-1-T MACHINERY HOIST ROOM	W5	1	104.0	5	80	5
1-154-1-A STOREROOM	W2	1	104.0	25	40	30
1-162-3-LP PASSAGE	W6	1	52.0	10	100	5
1-49-1-LP PASSAGE	W6	1	52.0	10	100	5
2-100-0-LP PASSAGE	F3	0	245.2	25	300	5
01-100-3-L OFFICER SR	C3	0	65.0	10	100	5
01-111-1-LW WR WC & SHR	C3	0	7.0	10	100	5
01-114-1-LP PASSAGE	C3	0	80.0	10	100	5
01-118-1-LW WR WC & SHR	C3	0	20.0	10	100	5
01-118-3-L OFFICER SR	C3	0	34.0	10	100	5
01-132-1-LW WR WC & SHR	C3	0	22.0	10	100	5
01-132-3-L OFFICER SR	C3	0	17.2	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-100-4-LW      WR & SHR

-----

USE: LW    Wash room, water closet and shower areas

AREA:    26 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:      338 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:              0 BTUs/sq.ft.

VENTILATION:            84 cu ft/min

EXCHANGE TIME:            4.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-100-4-LW

WR & SHR

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-100-2-LP PASSAGE	W3	1	65.0	25	60	25
1-100-6-Q SHIP LIBRARY	W3	0	65.0	25	60	25
1-100-6-Q SHIP LIBRARY	W3	0	67.6	25	60	25
1-89-2-QO COMMISSARY OFFICE	W6	0	61.1	10	100	5
2-100-0-LP PASSAGE	F3	0	10.0	25	300	5
2-100-4-L CREW BERTHING	F3	0	16.0	25	300	5
01-100-4-L CPO BERTHING	C3	0	26.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-100-5-LL CREW MESS  
-----

USE: LL Lounge areas

AREA: 1240 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 16,125 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 4,031 cu ft/min  
VENT AREA: 2000 sq.in.

EXCHANGE TIME: 4.0 min.  
VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	70	15	0	30
Tbar Failure	I	50	15	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 60% of time in port and 65% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-100-5-LL

CREW MESS

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-100-3-LP	PASSAGE	W2	2	796.9	25	40	30
1-162-3-LP	PASSAGE	W6	0	26.0	10	100	5
1-162-5-LW	WARD BATH	W6	0	130.0	10	100	5
1-162-7-L	WARD NO.1	W6	0	110.5	10	100	5
1-49-1-LP	PASSAGE	W6	0	253.5	10	100	5
2-100-0-LP	PASSAGE	F3	0	122.6	25	300	5
2-100-5-A	STACK CHAIR LOCKER	F3	0	20.0	25	300	5
2-100-7-LL	CREW LOUNGE	F3	0	546.4	25	300	5
2-134-1-LL	CREW STUDY	F3	0	244.9	25	300	5
2-148-1-Q	ATHLETIC GEAR LOCKER	F3	0	20.0	25	300	5
2-148-3-Q	WEIGHT ROOM & GYM	F3	0	216.1	25	300	5
01-100-3-L	OFFICER SR	C3	0	192.5	10	100	5
01-111-1-LW	WR WC & SHR	C3	0	59.5	10	100	5
01-114-1-LP	PASSAGE	C3	0	56.0	10	100	5
01-118-1-LW	WR WC & SHR	C3	0	20.0	10	100	5
01-118-3-L	OFFICER SR	C3	0	169.0	10	100	5
01-132-1-LW	WR WC & SHR	C3	0	11.0	10	100	5
01-132-3-L	OFFICER SR	C3	0	126.2	10	100	5
01-146-1-LW	WR WC & SHR	C3	0	46.2	10	100	5
01-146-3-L	OFFICER SR	C3	0	177.8	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-100-6-Q SHIP LIBRARY

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USE: QO Offices

AREA: 448 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 5,824 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 728 cu ft/min

EXCHANGE TIME: 8.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
	I	Time		
Fire Origin	20	5	0	60
Tbar Failure	15	5	0	40
Dbar Failure	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-100-6-Q

SHIP LIBRARY

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-2-LP PASSAGE	W2	1	247.0	25	40	30
1-100-4-LW WR & SHR	W3	0	65.0	25	60	25
1-100-4-LW WR & SHR	W3	0	67.6	25	60	25
1-124-2-LL CPO MESSROOM & LOUNGE	W2	0	266.5	25	40	30
1-89-2-QO COMMISSARY OFFICE	W6	0	42.9	10	100	5
1-89-4-A SODA STORAGE 1000 CASES	W6	0	136.5	10	100	5
2-100-0-LP PASSAGE	F3	0	38.0	25	300	5
2-100-4-L CREW BERTHING	F3	0	339.9	25	300	5
2-125-2-LW WR WC & SHR	F3	0	40.0	25	300	5
01-100-4-L CPO BERTHING	C3	0	140.0	10	100	5
01-106-2-LW WR WC & SHR	C3	0	16.0	10	100	5
01-113-2-L CPO BERTHING	C3	0	138.0	10	100	5
01-117-2-LW WR WC & SHR	C3	0	16.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-105-0-Q GALLEY

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 1185 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 15,411 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0021

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 1,926 cu ft/min

EXCHANGE TIME: 8.0 min.

VENT AREA: 225 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	90	6	0	20
Tbar Failure	I	70	6	0	40
Dbar Failure	I	50	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 50% of time in port and 70% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

3 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

2 Aqueous potassium carbonate

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-105-0-Q

GALLEY

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel	
1-100-0-LP	PASSAGE	W3	1	26.0	25	60	25
1-100-0-LP	PASSAGE	W3	0	33.8	25	60	25
1-100-0-LP	PASSAGE	W3	0	169.0	25	60	25
1-100-0-LP	PASSAGE	W3	0	408.2	25	60	25
1-100-2-LP	PASSAGE	W3	1	497.9	25	60	25
1-119-1-Q	SCULLERY	W3	0	39.0	25	60	25
1-119-1-Q	SCULLERY	W3	1	182.0	25	60	25
1-132-1-Q	INCINERATOR ROOM	W3	0	52.0	25	60	25
1-132-1-Q	INCINERATOR ROOM	W3	0	65.0	25	60	25
1-132-1-Q	INCINERATOR ROOM	W3	0	71.5	25	60	25
1-138-1-T	DUMB WAITER	W5	1	49.4	5	80	5
1-138-1-T	DUMB WAITER	W5	0	52.0	5	80	5
1-145-0-TU	UPTAKE 1	W8	0	208.0	80	100	5
1-145-2-TS	STAIRCASE	W5	0	78.0	5	80	5
2-100-0-LP	PASSAGE	F3	0	132.0	25	300	5
2-100-1-L	CREW BERTHING	F3	0	93.3	25	300	5
2-100-2-L	CREW BERTHING	F3	0	219.9	25	300	5
2-111-1-LW	WR WC & SHR	F3	0	80.7	25	300	5
2-111-2-LW	WR WC & SHR	F3	0	105.0	25	300	5
2-121-1-LW	WR WC & SHR	F3	0	90.0	25	300	5
2-121-2-LW	WR WC & SHR	F3	0	105.0	25	300	5
2-121-3-L	CREW BERTHING	F3	0	40.0	25	300	5
2-121-4-L	CREW BERTHING	F3	0	319.6	25	300	5
01-100-0-LL	WARDROOM & LOUNGE	C3	0	881.4	10	100	5
01-100-2-LP	PASSAGE	C3	0	228.1	10	100	5
01-126-1-Q	OFFICER PANTRY	C3	0	75.2	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-119-1-Q SCULLERY

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 182 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 2,366 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0021

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 1,183 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 225 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	20
Tbar Failure	I	100	999	0	40
Dbar Failure	I	50	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 50% of time in port and 70% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-119-1-Q

SCULLERY

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-0-LP PASSAGE	W3	0	130.0	25	60	25
1-100-3-LP PASSAGE	W3	1	182.0	25	60	25
1-105-0-Q GALLEY	W3	0	39.0	25	60	25
1-105-0-Q GALLEY	W3	1	182.0	25	60	25
1-132-1-Q INCINERATOR ROOM	W3	0	169.0	25	60	25
2-100-1-L CREW BERTHING	F3	0	26.0	25	300	5
2-121-1-LW WR WC & SHR	F3	0	15.0	25	300	5
2-121-3-L CREW BERTHING	F3	0	141.0	25	300	5
01-100-0-LL WARDROOM & LOUNGE	C3	0	72.0	10	100	5
01-114-1-LP PASSAGE	C3	0	56.0	10	100	5
01-126-1-Q OFFICER PANTRY	C3	0	54.0	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-124-2-LL CPO MESSROOM & LOUNGE

USE: LL Lounge areas

AREA: 764 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 9,938 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 24,800 BTUs/sq.ft.  
From Lounge Burnout Rpt. 000278

VENTILATION: 2,484 cu ft/min EXCHANGE TIME: 4.0 min.  
VENT AREA: 800 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	10	0	30
Tbar Failure	I	15	10	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 10% of time in port and 40% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-124-2-LL

CPO MESSROOM & LOUNGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-2-LP PASSAGE	W2	2	484.9	25	40	30
1-100-6-Q SHIP LIBRARY	W2	0	266.5	25	40	30
1-162-2-LP PASSAGE	W6	0	26.0	10	100	5
1-162-4-Q SHIP STORE	W6	0	130.0	10	100	5
1-162-6-A SHIP STORE STOREROOM	W6	0	110.5	10	100	5
2-100-0-LP PASSAGE	F3	0	74.6	25	300	5
2-100-4-L CREW BERTHING	F3	0	46.5	25	300	5
2-125-2-LW WR WC & SHR	F3	0	60.0	25	300	5
2-130-2-QO EXO OFFICE	F3	0	270.0	25	300	5
2-146-2-Q ENGINEERING LOG & DAMAGE	F3	0	293.4	25	300	5
01-100-2-LP PASSAGE	C3	0	70.0	10	100	5
01-113-2-L CPO BERTHING	C3	0	12.0	10	100	5
01-117-2-LW WR WC & SHR	C3	0	2.0	10	100	5
01-125-2-LW WR WC & SHR	C3	0	16.0	10	100	5
01-125-4-L CPO BERTHING	C3	0	152.0	10	100	5
01-142-2-L CPO BERTHING	C3	0	224.4	10	100	5
01-154-2-LW WR WC & SHR	C3	0	46.8	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-132-1-Q INCINERATOR ROOM

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 255 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 3,320 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0033

FUEL LOAD: 5,277 BTUs/sq.ft.  
Class A materials - (0.5gpm x 6/compartment area)

VENTILATION: 1,660 cu ft/min EXCHANGE TIME: 2.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	3	80	10
Tbar Failure	I	60	3	50	30
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 5% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-132-1-Q

INCINERATOR ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-3-LP PASSAGE	W2	1	172.9	25	40	30
1-105-0-Q GALLEY	W3	0	52.0	25	60	25
1-105-0-Q GALLEY	W3	0	65.0	25	60	25
1-105-0-Q GALLEY	W3	0	71.5	25	60	25
1-119-1-Q SCULLERY	W3	0	169.0	25	60	25
1-138-1-T DUMB WAITER	W5	0	49.4	5	80	5
1-138-1-T DUMB WAITER	W5	0	52.0	5	80	5
1-145-0-TU UPTAKE 1	W8	0	208.0	80	100	5
1-145-1-T MACHINERY HOIST ROOM	W5	0	78.0	5	80	5
2-100-0-LP PASSAGE	F3	0	124.0	25	300	5
2-121-3-L CREW BERTHING	F3	0	131.4	25	300	5
01-114-1-LP PASSAGE	C3	0	125.2	10	100	5
01-126-1-Q OFFICER PANTRY	C3	0	130.2	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-138-1-T DUMB WAITER

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USE: T Elevators, dumb waiters

AREA: 15 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 197 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 4,000 BTUs/sq.ft.  
Accumulated dust and grease and cable insulation

VENTILATION: 98 cu ft/min EXCHANGE TIME: 2.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-138-1-T

DUMB WAITER

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-105-0-Q GALLEY	W5	1	49.4	5	80	5
1-105-0-Q GALLEY	W5	0	52.0	5	80	5
1-132-1-Q INCINERATOR ROOM	W5	0	49.4	5	80	5
1-132-1-Q INCINERATOR ROOM	W5	0	52.0	5	80	5
2-100-0-LP PASSAGE	F3	0	8.0	25	300	5
2-121-3-L CREW BERTHING	F3	0	7.2	25	300	5
01-138-1-T DUMB WAITER	C3	0	15.2	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-145-1-T MACHINERY HOIST ROOM

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USE: T Elevators, dumb waiters

AREA: 48 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 624 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 12,000 BTUs/sq.ft.  
Accumulated dust and grease and cable insulation

VENTILATION: 312 cu ft/min EXCHANGE TIME: 2.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-145-1-T

MACHINERY HOIST ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-100-3-LP	PASSAGE	W5	1	104.0	5	80	5
1-132-1-Q	INCINERATOR ROOM	W5	0	78.0	5	80	5
1-145-0-TU	UPTAKE 1	W8	0	104.0	80	100	5
1-154-1-A	STOREROOM	W5	0	78.0	5	80	5
2-100-0-LP	PASSAGE	F3	0	1.2	25	300	5
2-145-1-T	MACHINERY HOIST	F3	1	46.8	25	300	5
01-114-1-LP	PASSAGE	C3	0	46.2	10	100	5
01-153-1-A	STOREROOM	C3	0	1.8	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-145-2-TS STAIRCASE

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USE: TS Staircases

AREA: 96 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,248 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 249 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:	I	I	FRI Time	A	M
Fire Origin		100	999	0	30
Tbar Failure		100	999	0	40
Dbar Failure		90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-145-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-100-2-LP PASSAGE	W5	1	208.0	5	80	5
1-105-0-Q GALLEY	W5	0	78.0	5	80	5
1-145-0-TU UPTAKE 1	W8	0	208.0	80	100	5
1-162-2-LP PASSAGE	W6	0	78.0	10	100	5
2-100-0-LP PASSAGE	F3	0	10.8	25	300	5
2-145-2-TS STAIRCASE	F3	1	66.0	25	300	5
2-157-2-A GEAR LOCKER	F3	0	19.2	25	300	5
01-100-2-LP PASSAGE	C3	0	25.8	10	100	5
01-145-2-TS STAIRCASE	C3	1	70.2	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-154-1-A      STOREROOM

---

USE: AS      Storerooms

AREA:    48 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:      624 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0009

FUEL LOAD: 2,080,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION:      62 cu ft/min

EXCHANGE TIME:      10.0 min.

VENT AREA:    10 sq.in.

VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	30	3	0	30
Tbar Failure	20	3	0	20
Dbar Failure	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-154-1-A

STOREROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-3-LP PASSAGE	W2	1	104.0	25	40	30
1-145-0-TU UPTAKE 1	W8	0	104.0	80	100	5
1-145-1-T MACHINERY HOIST ROOM	W5	0	78.0	5	80	5
1-162-1-TS STAIRCASE	W6	0	78.0	10	100	5
2-145-1-T MACHINERY HOIST	F3	0	1.2	25	300	5
2-154-1-A STOREROOM	F3	0	46.8	25	300	5
01-153-1-A STOREROOM	C3	0	48.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-162-1-TS STAIRCASE

-----

USE: TS Staircases

AREA: 76 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 990 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 198 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI Time	A	M
Fire Origin		100	999	0	30
Tbar Failure		100	999	0	40
Dbar Failure		90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-162-1-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-154-1-A	STOREROOM	W6	0	78.0	10	100	5
1-162-0-TU	UPTAKE 2	W8	0	208.0	80	100	5
1-162-3-LP	PASSAGE	W5	1	208.0	5	80	5
1-178-1-E	BOILER ROOM UPPER LEVEL	W6	0	78.0	10	100	5
2-162-1-TS	STAIRCASE	F3	1	96.0	25	300	5
01-162-1-TS	STAIRCASE	C3	1	76.2	10	100	5
01-162-3-LP	PASSAGE	C3	0	19.8	10	100	5
		--					
			3				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-162-2-LP      PASSAGE  
Zero strength barrier adjacent.

-----

USE: LP      Passageways

AREA: 259 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 3,372 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 674 cu ft/min      EXCHANGE TIME: 5.0 min.  
VENT AREA: 750 sq.in.      VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		

-----

Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.  
1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-162-2-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-100-2-LP PASSAGE	W6	1	52.0	10	100	5
1-124-2-LL CPO MESSROOM & LOUNGE	W6	0	26.0	10	100	5
1-145-2-TS STAIRCASE	W6	0	78.0	10	100	5
1-162-0-TU UPTAKE 2	W8	0	100.1	80	100	5
1-162-4-Q SHIP STORE	W2	1	208.0	25	40	30
1-169-2-T MACHINERY HOIST ROOM	W5	0	78.0	5	80	5
1-169-2-T MACHINERY HOIST ROOM	W5	1	107.9	5	80	5
1-178-2-E BOILER ROOM UPPER LEVEL	W6	0	26.0	10	100	5
1-178-2-E BOILER ROOM UPPER LEVEL	W6	0	380.9	10	100	5
1-178-4-Q0 SUPPLY OFFICE	W2	1	269.1	25	40	30
1-198-2-Q0 SHIP OFFICE	W2	1	111.8	25	40	30
1-207-2-LP PASSAGE	W0	0	52.0	0	0	100
2-162-2-LP PASSAGE	F3	0	259.4	25	300	5
01-162-2-LP PASSAGE	C3	0	95.4	10	100	5
01-162-4-LW WR WC & SHR	C3	0	30.8	10	100	5
01-162-6-L CPO BERTHING	C3	0	16.0	10	100	5
01-178-2-W ROLL STABILIZATION TANK	C3	0	117.2	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-162-3-LP      PASSAGE  
Zero strength barrier adjacent.

-----

USE: LP      Passageways

AREA: 405 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 5,265 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 1,053 cu ft/min      EXCHANGE TIME: 5.0 min.  
VENT AREA: 1500 sq.in.      VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.  
1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-162-3-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel	
1-100-3-LP	PASSAGE	W6	1	52.0	10	100	5
1-100-5-LL	CREW MESS	W6	0	26.0	10	100	5
1-162-1-TS	STAIRCASE	W5	1	208.0	5	80	5
1-162-5-LW	WARD BATH	W3	0	139.1	25	60	25
1-174-1-L	MEDICAL TREATMENT & EXAMI	W2	3	344.5	25	40	30
1-178-1-E	BOILER ROOM UPPER LEVEL	W6	0	26.0	10	100	5
1-178-1-E	BOILER ROOM UPPER LEVEL	W6	0	312.0	10	100	5
1-178-1-E	BOILER ROOM UPPER LEVEL	W6	1	380.9	10	100	5
1-199-1-L	MEDICAL STORES	W2	1	110.5	25	40	30
1-207-1-A	STOREROOM	W2	1	84.5	25	40	30
1-207-2-LP	PASSAGE	W0	0	44.2	0	0	100
1-210-0-M	SMALL ARMS STOW & REPAIR	W2	0	58.5	25	40	30
1-210-1-Q	BARBER SHOP	W2	1	110.5	25	40	30
1-210-3-A	GEAR LOCKER	W2	0	39.0	25	40	30
1-210-3-A	GEAR LOCKER	W2	1	39.0	25	40	30
1-213-1-LW	WC & WR	W3	1	124.8	25	60	25
1-213-3-L	Q.M. SHELTER	W2	0	45.5	25	40	30
1-213-3-L	Q.M. SHELTER	W2	0	78.0	25	40	30
1-223-0-C	AFT REPAIR NO.3 & DAMAGE	W6	1	78.0	10	100	5
2-162-1-TS	STAIRCASE	F3	0	16.0	25	300	5
2-162-3-LP	PASSAGE	F3	0	296.8	25	300	5
2-210-0-Q	GRAVIMETER ROOM	F3	0	2.8	25	300	5
2-210-01-Q	COMPUTER/NAV LAB	F3	0	89.4	25	300	5
01-162-3-LP	PASSAGE	C3	0	72.6	10	100	5
01-162-5-A	ARCTIC GEAR LOCKER--OFFIC	C3	0	23.4	10	100	5
01-178-0-W	ROLL STAB TANK CROSS DUCK	C3	0	54.4	10	100	5
01-178-1-LP	PASSAGE	C3	0	42.8	10	100	5
01-178-3-W	ROLL STABILIZATION TANK	C3	0	180.0	10	100	5
01-218-5-LP	PASSAGE	C3	0	31.8	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-162-4-Q SHIP STORE

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 205 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 2,666 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0006

FUEL LOAD: 32,000 BTUs/sq.ft.

VENTILATION: 296 cu ft/min

EXCHANGE TIME: 9.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	1	20	3	0	20
Tbar Failure	1	15	3	0	40
Dbar Failure	1	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 10% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-162-4-Q

SHIP STORE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-124-2-LL	CPO MESSROOM & LOUNGE	W6	0	130.0	10	100	5
1-162-2-LP	PASSAGE	W2	1	208.0	25	40	30
1-162-6-A	SHIP STORE STOREROOM	W2	0	110.5	25	40	30
1-162-6-A	SHIP STORE STOREROOM	W2	1	139.1	25	40	30
1-178-4-Q0	SUPPLY OFFICE	W2	0	104.0	25	40	30
1-178-6-Q0	SUPPLY OFFICER OFFICE	W2	0	136.5	25	40	30
2-162-4-Q	MACHINE SHOP	F3	0	202.4	25	300	5
01-162-2-LP	PASSAGE	C3	0	51.6	10	100	5
01-162-4-LW	WR WC & SHR	C3	0	7.7	10	100	5
01-162-6-L	CPO BERTHING	C3	0	111.3	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-162-5-LW      WARD BATH

---

USE: LW    Wash room, water closet and shower areas

AREA:    98 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:    1,274 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD:      4,000 BTUs/sq.ft.

VENTILATION:      318 cu ft/min

EXCHANGE TIME:      4.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-162-5-LW

WARD BATH

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-100-5-LL	CREW MESS	W6	0	130.0	10	100	5
1-162-3-LP	PASSAGE	W3	0	139.1	25	60	25
1-162-7-L	WARD NO.1	W3	0	100.1	25	60	25
1-174-1-L	MEDICAL TREATMENT & EXAMI	W3	0	39.0	25	60	25
1-174-1-L	MEDICAL TREATMENT & EXAMI	W3	1	39.0	25	60	25
1-174-1-L	MEDICAL TREATMENT & EXAMI	W3	0	91.0	25	60	25
2-162-5-Q	SHIP LAUNDRY	F3	0	98.0	25	300	5
01-162-5-A	ARCTIC GEAR LOCKER--OFFIC	C3	0	98.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-162-6-A SHIP STORE STOREROOM

---

USE: AS Storerooms

AREA: 91 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,183 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 2,080,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 118 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	4	0	30
Tbar Failure	I	20	4	0	20
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 15% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-162-6-A

SHIP STORE STOREROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-124-2-LL CPO MESSROOM & LOUNGE	W6	0	110.5	10	100	5
1-162-4-Q SHIP STORE	W2	0	110.5	25	40	30
1-162-4-Q SHIP STORE	W2	1	139.1	25	40	30
2-162-4-Q MACHINE SHOP	F3	0	85.6	25	300	5
01-162-6-L CPO BERTHING	C3	0	21.4	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-162-7-L      WARD NO.1

-----

USE: L2      Berthing Space for 2

AREA:    90 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:    1,181 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0008

FUEL LOAD:      35,199 BTUs/sq.ft.  
                 No. of people x 200/compt.area

VENTILATION:      393 cu ft/min      EXCHANGE TIME:      3.0 min.  
VENT AREA:    175 sq.in.      VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
-----	-----	-----	-----	-----	-----
Fire Origin	I	20	4	0	30
Tbar Failure	I	15	4	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    0% of time in port and    10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1    1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-162-7-L

WARD NO.1

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-100-5-LL	CREW MESS	W6	0	110.5	10	100	5
1-162-5-LW	WARD BATH	W3	0	100.1	25	60	25
1-174-1-L	MEDICAL TREATMENT & EXAMI	W2	1	39.0	25	40	30
1-174-3-L	WARD NO.2	W2	0	110.5	25	40	30
2-162-5-Q	SHIP LAUNDRY	F3	0	85.6	25	300	5
01-162-5-A	ARCTIC GEAR LOCKER--OFFIC	C3	0	21.4	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-169-2-T      MACHINERY HOIST ROOM

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USE: T    Elevators, dumb waiters

AREA:    49 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:      647 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD:      12,000 BTUs/sq.ft.  
Accumulated dust and grease and cable insulation

VENTILATION:      323 cu ft/min      EXCHANGE TIME:      2.0 min.  
VENT AREA:      10 sq.in.      VENT HEIGHT:      1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-169-2-T

MACHINERY HOIST ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-162-0-TU UPTAKE 2	W8	0	107.9	80	100	5
1-162-2-LP PASSAGE	W5	0	78.0	5	80	5
1-162-2-LP PASSAGE	W5	1	107.9	5	80	5
1-178-2-E BOILER ROOM UPPER LEVEL	W6	0	78.0	10	100	5
2-169-2-T MACHINERY HOIST	F3	1	49.8	25	300	5
01-162-2-LP PASSAGE	C3	0	49.8	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-174-1-L MEDICAL TREATMENT & EXAMINATION ROOM

USE: L Living quarters/medical/dental areas

AREA: 414 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 5,384 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 1,076 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 400 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	7	0	30
Tbar Failure	I	15	7	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 40% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

2 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-174-1-L

MEDICAL TREATMENT & EXAMINATION ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-162-3-LP PASSAGE	W2	3	344.5	25	40	30
1-162-5-LW WARD BATH	W3	0	39.0	25	60	25
1-162-5-LW WARD BATH	W3	1	39.0	25	60	25
1-162-5-LW WARD BATH	W3	0	91.0	25	60	25
1-162-7-L WARD NO.1	W2	1	39.0	25	40	30
1-174-3-L WARD NO.2	W2	0	110.5	25	40	30
1-174-3-L WARD NO.2	W2	1	130.0	25	40	30
1-199-1-L MEDICAL STORES	W2	0	169.0	25	40	30
1-199-3-L X-RAY DARKROOM	W2	0	71.5	25	40	30
2-162-5-Q SHIP LAUNDRY	F3	0	79.0	25	300	5
2-180-1-Q SELF-SERVICE LAUNDRY	F3	0	264.0	25	300	5
2-195-1-A ELECTRICAL STOREROOM	F3	0	63.0	25	300	5
01-162-3-LP PASSAGE	C3	0	43.0	10	100	5
01-162-5-A ARCTIC GEAR LOCKER--OFFIC	C3	0	19.0	10	100	5
01-178-3-W ROLL STABILIZATION TANK	C3	0	127.2	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-174-3-L      WARD NO.2

-----

USE: L2    Berthing Space for 2

AREA:    85 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:    1,105 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0008

FUEL LOAD:    37,664 BTUs/sq.ft.  
No. of people x 200/compt.area

VENTILATION:    368 cu ft/min      EXCHANGE TIME:    3.0 min.  
VENT AREA:    175 sq.in.      VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		

-----

Fire Origin	I	20	4	0	30
Tbar Failure	I	15	4	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    0% of time in port and    10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1    1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-174-3-L

WARD NO.2

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-7-L WARD NO.1	W2	0	110.5	25	40	30
1-174-1-L MEDICAL TREATMENT & EXAMI	W2	0	110.5	25	40	30
1-174-1-L MEDICAL TREATMENT & EXAMI	W2	1	130.0	25	40	30
2-162-5-Q SHIP LAUNDRY	F3	0	56.0	25	300	5
2-180-1-Q SELF-SERVICE LAUNDRY	F3	0	24.0	25	300	5
01-162-3-LP PASSAGE	C3	0	8.6	10	100	5
01-162-5-A ARCTIC GEAR LOCKER--OFFIC	C3	0	2.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-178-1-E BOILER ROOM (MAIN DECK LEVEL)  
Zero strength barrier below.

-----

USE: E Machinery areas which are normally occupied.

AREA: 703 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 9,141 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0452

FUEL LOAD: 8,556 BTUs/sq.ft.

Paint and miscellaneous (1.2gpm x 6m/compartiment area)

VENTILATION: 4,570 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 500 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	3	80	10
Tbar Failure	I	15	3	20	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture

No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

2 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-178-1-E BOILER ROOM (MAIN DECK LEVEL)

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-0-TU UPTAKE 2	W8	0	208.0	80	100	5
1-162-1-TS STAIRCASE	W6	0	78.0	10	100	5
1-162-3-LP PASSAGE	W6	0	26.0	10	100	5
1-162-3-LP PASSAGE	W6	0	312.0	10	100	5
1-162-3-LP PASSAGE	W6	1	380.9	10	100	5
1-178-2-E BOILER ROOM UPPER LEVEL	W6	1	380.9	10	100	5
2-162-3-LP PASSAGE	F3	0	2.4	25	300	5
2-178-1-E BOILER ROOM	F0	0	700.8	0	0	100
01-178-0-W ROLL STAB TANK CROSS DUCK	C3	0	404.8	10	100	5
01-178-1-LP PASSAGE	C3	0	181.2	10	100	5
01-178-3-W ROLL STABILIZATION TANK	C3	0	117.2	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-178-2-E BOILER ROOM (MAIN DECK LEVEL)  
Zero strength barrier below.

USE: E Machinery areas which are normally occupied.

AREA: 703 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 9,141 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0452

FUEL LOAD: 1,914 BTUs/sq.ft.  
Paint and miscellaneous

VENTILATION: 4,570 cu ft/min EXCHANGE TIME: 2.0 min.  
VENT AREA: 500 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	3	80	10
Tbar Failure	I	0	3	20	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)  
Photo electric smoke detection system (P)  
Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

2 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.  
2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-178-2-E

BOILER ROOM (MAIN DECK LEVEL)

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-0-TU UPTAKE 2	W8	0	208.0	80	100	5
1-162-2-LP PASSAGE	W6	0	26.0	10	100	5
1-162-2-LP PASSAGE	W6	0	380.9	10	100	5
1-169-2-T MACHINERY HOIST ROOM	W6	0	78.0	10	100	5
1-178-1-E BOILER ROOM UPPER LEVEL	W6	1	380.9	10	100	5
1-207-2-LP PASSAGE	W6	1	312.0	10	100	5
2-162-2-LP PASSAGE	F3	0	2.4	25	300	5
2-178-2-E BOILER ROOM	F0	0	700.8	0	0	100
01-178-0-W ROLL STAB TANK CROSS DUCK	C3	0	586.0	10	100	5
01-178-2-W ROLL STABILIZATION TANK	C3	0	117.2	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-178-4-Q0      SUPPLY OFFICE

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USE: Q0    Offices

AREA: 165 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 2,152 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 307 cu ft/min      EXCHANGE TIME: 7.0 min.  
VENT AREA: 175 sq.in.      VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		

-----

Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-178-4-Q0

SUPPLY OFFICE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-2-LP	PASSAGE	W2	1	269.1	25	40	30
1-162-4-Q	SHIP STORE	W2	0	104.0	25	40	30
1-178-6-Q0	SUPPLY OFFICER OFFICE	W2	1	113.1	25	40	30
1-187-2-Q0	1ST LT OFFICE	W2	1	156.0	25	40	30
1-198-2-Q0	SHIP OFFICE	W2	0	104.0	25	40	30
2-162-4-Q	MACHINE SHOP	F3	0	141.6	25	300	5
2-195-2-Q	FIREFIGHTING EQPT ROOM	F3	0	24.0	25	300	5
01-178-2-W	ROLL STABILIZATION TANK	C3	0	124.2	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-178-6-Q0      SUPPLY OFFICER OFFICE

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USE: Q0    Offices

AREA:    91 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:    1,188 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0004

FUEL LOAD:    20,000 BTUs/sq.ft.

VENTILATION:    169 cu ft/min      EXCHANGE TIME:    7.0 min.  
VENT AREA:    175 sq.in.      VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-178-6-Q0

SUPPLY OFFICER OFFICE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-162-4-Q	SHIP STORE	W2	0	136.5	25	40	30
1-178-4-Q0	SUPPLY OFFICE	W2	1	113.1	25	40	30
1-187-2-Q0	1ST LT OFFICE	W2	0	136.5	25	40	30
2-162-4-Q	MACHINE SHOP	F3	0	87.0	25	300	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-187-2-Q0 1ST LT OFFICE

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USE: Q0 Offices

AREA: 126 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,638 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 234 cu ft/min EXCHANGE TIME: 7.0 min.  
VENT AREA: 175 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-187-2-Q0

1ST LT OFFICE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-178-4-Q0	SUPPLY OFFICE	W2	1	156.0	25	40	30
1-178-6-Q0	SUPPLY OFFICER OFFICE	W2	0	136.5	25	40	30
1-198-2-Q0	SHIP OFFICE	W2	0	136.5	25	40	30
2-162-4-Q	MACHINE SHOP	F3	0	90.0	25	300	5
2-195-2-Q	FIREFIGHTING EQPT ROOM	F3	0	29.9	25	300	5
		--					
		1					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-198-2-Q0 SHIP OFFICE

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USE: Q0 Offices

AREA: 225 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 2,931 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 488 cu ft/min

EXCHANGE TIME: 6.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-198-2-Q0

SHIP OFFICE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-2-LP	PASSAGE	W2	1	111.8	25	40	30
1-178-4-Q0	SUPPLY OFFICE	W2	0	104.0	25	40	30
1-187-2-Q0	1ST LT OFFICE	W2	0	136.5	25	40	30
1-206-2-Q0	EXO OFFICE	W2	0	136.5	25	40	30
1-206-2-Q0	EXO OFFICE	W2	1	156.0	25	40	30
1-207-2-LP	PASSAGE	W2	0	135.2	25	40	30
2-195-2-Q	FIREFIGHTING EQPT ROOM	F3	0	221.2	25	300	5
01-178-2-W	ROLL STABILIZATION TANK	C3	0	114.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-199-1-L MEDICAL STORES

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USE: L Living quarters/medical/dental areas

AREA: 110 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,436 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 400,000 BTUs/sq.ft.

VENTILATION: 143 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
			Time		
Fire Origin		30	4	0	30
Tbar Failure		20	4	0	40
Dbar Failure		10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-199-1-L

MEDICAL STORES

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-3-LP	PASSAGE	W2	1	110.5	25	40	30
1-174-1-L	MEDICAL TREATMENT & EXAMI	W2	0	169.0	25	40	30
1-199-3-L	X-RAY DARKROOM	W2	1	110.5	25	40	30
1-207-1-A	STOREROOM	W2	0	72.8	25	40	30
1-207-3-A	LIFE JACKET LOCKER	W2	0	70.2	25	40	30
1-207-5-A	BOAT GEAR LOCKER	W2	0	26.0	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	F3	0	110.5	25	300	5
01-178-3-W	ROLL STABILIZATION TANK	C3	0	51.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-199-3-L      X-RAY DARKROOM

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USE: Q    Areas usually unoccupied:    engineering, electronics, galleys

AREA:    46 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:      607 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0023

FUEL LOAD:      20,000 BTUs/sq.ft.

VENTILATION:      303 cu ft/min

EXCHANGE TIME:      2.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

E STARTED DUE TO:	I	FRI	A	M	
		Time			
Fire Origin	1	20	4	0	20
Tbar Failure	1	15	4	0	40
Dbar Failure	1	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1    1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-199-3-L

X-RAY DARKROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-174-1-L	MEDICAL TREATMENT & EXAMI	W2	0	71.5	25	40	30
1-199-1-L	MEDICAL STORES	W2	1	110.5	25	40	30
1-207-5-A	BOAT GEAR LOCKER	W2	0	71.5	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	F3	0	42.5	25	300	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-206-2-Q0      EXO OFFICE

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USE: Q0    Offices

AREA: 126 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 1,638 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 234 cu ft/min  
VENT AREA: 175 sq.in.

EXCHANGE TIME: 7.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-206-2-Q0

EXO OFFICE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-198-2-Q0	SHIP OFFICE	W2	0	136.5	25	40	30
1-198-2-Q0	SHIP OFFICE	W2	1	156.0	25	40	30
2-195-2-Q	FIREFIGHTING EQPT ROOM	F3	0	116.5	25	300	5
		--					
			1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-207-1-A      STOREROOM

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USE: AS      Storerooms

AREA:      56 sq.ft.      DECK HEIGHT: 13.0 ft.      VOLUME:      728 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:      0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:      0.0009

FUEL LOAD:      32,000 BTUs/sq.ft.

VENTILATION:      242 cu ft/min

EXCHANGE TIME:      3.0 min.

VENT AREA:      10 sq.in.

VENT HEIGHT:      1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	4	0	30
Tbar Failure	I	15	4	0	20
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied      5% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-207-1-A                      STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-3-LP	PASSAGE	W2	1	84.5	25	40	30
1-199-1-L	MEDICAL STORES	W2	0	72.8	25	40	30
1-207-3-A	LIFE JACKET LOCKER	W2	0	130.0	25	40	30
1-213-3-L	Q.M. SHELTER	W2	0	45.5	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	F3	0	11.2	25	300	5
2-205-1-Q	ELECTRIC SHOP	F3	0	44.8	25	300	5
01-178-3-W	ROLL STABILIZATION TANK	C3	0	56.0	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-207-2-LP      PASSAGE  
Zero strength barrier adjacent.

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USE: LP      Passageways

AREA: 185 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 2,412 cu.ft.

UNACCEPTABLE LOSS: Code B (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 482 cu ft/min      EXCHANGE TIME: 5.0 min.  
VENT AREA: 1000 sq.in.      VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-207-2-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-2-LP	PASSAGE	W0	0	52.0	0	0	100
1-162-3-LP	PASSAGE	W0	0	44.2	0	0	100
1-178-2-E	BOILER ROOM UPPER LEVEL	W6	1	312.0	10	100	5
1-198-2-Q0	SHIP OFFICE	W2	0	135.2	25	40	30
1-210-0-M	SMALL ARMS STOW & REPAIR	W2	1	104.0	25	40	30
1-210-2-Q	MAIL ROOM	W2	0	104.0	25	40	30
1-210-2-Q	MAIL ROOM	W2	1	104.0	25	40	30
1-213-2-TS	STAIRCASE	W5	0	52.0	5	80	5
1-213-2-TS	STAIRCASE	W5	0	52.0	5	80	5
1-213-2-TS	STAIRCASE	W5	1	124.8	5	80	5
1-217-2-A	C.G. LOCKER	W2	1	52.0	25	40	30
1-218-2-A	C.G. LOCKER	W2	1	59.8	25	40	30
1-223-2-LP	PASSAGE	W6	1	52.0	10	100	5
2-162-2-LP	PASSAGE	F3	0	113.6	25	300	5
2-210-0-Q	GRAVIMETER ROOM	F3	0	2.8	25	300	5
2-210-01-Q	COMPUTER/NAV LAB	F3	0	3.6	25	300	5
2-210-2-TS	STAIRCASE	F3	0	65.6	25	300	5
01-178-0-W	ROLL STAB TANK CROSS DUCK	C3	0	97.2	10	100	5
01-178-2-W	ROLL STABILIZATION TANK	C3	0	67.2	10	100	5
01-218-6-LP	PASSAGE	C3	0	21.2	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-207-3-A LIFE JACKET LOCKER

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USE: AG Small Storage Spaces -- Gear Lockers

AREA: 54 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 702 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 120,000 BTUs/sq.ft.

VENTILATION: 70 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	3	0	40
Tbar Failure	I	5	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-207-3-A

LIFE JACKET LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-199-1-L	MEDICAL STORES	W2	0	70.2	25	40	30
1-207-1-A	STOREROOM	W2	0	130.0	25	40	30
1-207-5-A	BOAT GEAR LOCKER	W2	0	130.0	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	F3	0	10.8	25	300	5
2-205-1-Q	ELECTRIC SHOP	F3	0	43.2	25	300	5
01-178-3-W	ROLL STABILIZATION TANK	C3	0	4.0	10	100	5
		--					
		0					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-207-5-A BOAT GEAR LOCKER

---

USE: AG Small Storage Spaces -- Gear Lockers

AREA: 75 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 975 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 120,000 BTUs/sq.ft.

VENTILATION: 97 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	10	5	0	40
Tbar Failure	5	5	0	30
Dbar Failure	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-207-5-A

BOAT GEAR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-199-1-L	MEDICAL STORES	W2	0	26.0	25	40	30
1-199-3-L	X-RAY DARKROOM	W2	0	71.5	25	40	30
1-207-3-A	LIFE JACKET LOCKER	W2	0	130.0	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	F3	0	14.0	25	300	5
2-205-1-Q	ELECTRIC SHOP	F3	0	54.8	25	300	5
		--					
		0					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-210-0-M SMALL ARMS STOW & REPAIR

USE: M Ammunition (stowages and handling)

AREA: 157 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 2,046 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200,000 BTUs/sq.ft.

VENTILATION: 511 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	5	3	90	0
Tbar Failure	I	25	3	40	0
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 15% of time at sea.

Automatic:

Fixed temperature detection system (FT)

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

Flame detection system (UU or IR) (F)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 3/12/87)

Compartment: 1-210-0-M

SMALL ARMS STOW &amp; REPAIR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-3-LP	PASSAGE	W2	0	58.5	25	40	30
1-207-2-LP	PASSAGE	W2	1	104.0	25	40	30
1-210-1-Q	BARBER SHOP	W2	0	163.8	25	40	30
1-210-2-Q	MAIL ROOM	W2	0	104.0	25	40	30
1-218-2-A	C.G. LOCKER	W2	0	59.8	25	40	30
1-223-0-C	AFT REPAIR NO.3 & DAMAGE	W6	0	162.5	10	100	5
2-210-0-Q	GRAVIMETER ROOM	F3	0	87.4	25	300	5
2-210-01-Q	COMPUTER/NAV LAB	F3	0	70.1	25	300	5
01-178-0-W	ROLL STAB TANK CROSS DUCK	C3	0	91.2	10	100	5
01-218-1-LW	WC & SHR	C3	0	23.8	10	100	5
01-218-2-LW	WC & SHR	C3	0	42.4	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-210-1-Q BARBER SHOP

USE: QO Offices

AREA: 107 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,393 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 348 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-210-1-Q

BARBER SHOP

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-3-LP	PASSAGE	W2	1	110.5	25	40	30
1-210-0-M	SMALL ARMS STOW & REPAIR	W2	0	163.8	25	40	30
1-210-3-A	GEAR LOCKER	W2	0	39.0	25	40	30
1-213-1-LW	WC & WR	W3	0	124.8	25	60	25
1-223-0-C	AFT REPAIR NO.3 & DAMAGE	W6	0	110.5	10	100	5
2-210-0-Q	GRAVIMETER ROOM	F3	0	19.0	25	300	5
2-210-01-Q	COMPUTER/NAV LAB	F3	0	88.1	25	300	5
01-178-0-W	ROLL STAB TANK CROSS DUCK	C3	0	62.1	10	100	5
01-218-1-LW	WC & SHR	C3	0	18.6	10	100	5
01-218-3-A	GEAR LOCKER	C3	0	26.5	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-210-2-Q      MAIL ROOM

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USE: Q0    Offices

AREA:    64 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:      832 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD:      20,000 BTUs/sq.ft.

VENTILATION:      118 cu ft/min

EXCHANGE TIME:      7.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-210-2-Q

MAIL ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-207-2-LP	PASSAGE	W2	0	104.0	25	40	30
1-207-2-LP	PASSAGE	W2	1	104.0	25	40	30
1-210-0-M	SMALL ARMS STOW & REPAIR	W2	0	104.0	25	40	30
1-218-2-A	C.G. LOCKER	W2	0	104.0	25	40	30
2-210-01-Q	COMPUTER/NAU LAB	F3	0	64.0	25	300	5
01-178-0-W	ROLL STAB TANK CROSS DUCK	C3	0	58.4	10	100	5
01-218-4-A	GEAR LOCKER	C3	0	5.6	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-210-3-A GEAR LOCKER

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USE: AG Small Storage Spaces -- Gear Lockers

AREA: 9 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 117 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,080,000 BTUs/sq.ft.  
Fuel load in psf = 15 x height of deck.

VENTILATION: 11 cu ft/min EXCHANGE TIME: 10.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	3	0	40
Tbar Failure	I	10	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-210-3-A

GEAR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-3-LP	PASSAGE	W2	0	39.0	25	40	30
1-162-3-LP	PASSAGE	W2	1	39.0	25	40	30
1-210-1-Q	BARBER SHOP	W2	0	39.0	25	40	30
1-213-1-LW	WC & WR	W3	0	39.0	25	60	25
2-210-01-Q	COMPUTER/NAU LAB	F3	0	9.0	25	300	5
01-178-0-W	ROLL STAB TANK CROSS DUCK	C3	0	9.0	10	100	5
		--					
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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-213-1-LW WC & WR

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USE: LW Wash room, water closet and shower areas

AREA: 28 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 374 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD: 0 BTUs/sq.ft.

VENTILATION: 93 cu ft/min EXCHANGE TIME: 4.0 min.  
VENT AREA: 175 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-213-1-LW

WC & WR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-3-LP	PASSAGE	W3	1	124.8	25	60	25
1-210-1-Q	BARBER SHOP	W3	0	124.8	25	60	25
1-210-3-A	GEAR LOCKER	W3	0	39.0	25	60	25
1-223-0-C	AFT REPAIR NO.3 & DAMAGE	W6	0	39.0	10	100	5
2-210-01-Q	COMPUTER/NAV LAB	F3	0	28.8	25	300	5
01-178-0-W	ROLL STAB TANK CROSS DUCK	C3	0	12.9	10	100	5
01-218-3-A	GEAR LOCKER	C3	0	15.9	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-213-2-TS STAIRCASE

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USE: TS Staircases

AREA: 38 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 499 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 99 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-213-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-207-2-LP	PASSAGE	W5	0	52.0	5	80	5
1-207-2-LP	PASSAGE	W5	0	52.0	5	80	5
1-207-2-LP	PASSAGE	W5	1	124.8	5	80	5
1-217-2-A	C.G. LOCKER	W5	0	72.8	5	80	5
1-223-4-A	LIFE JACKET LOCKER	W6	0	52.0	10	100	5
2-210-2-TS	STAIRCASE	F3	1	38.4	25	300	5
01-178-2-W	ROLL STABILIZATION TANK	C3	0	17.2	10	100	5
01-218-8-A	SCIENCE BAGGAGE ROOM	C3	0	21.2	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-213-3-L Q.M. SHELTER

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USE: L Living quarters/medical/dental areas

AREA: 21 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 273 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 45 cu ft/min

EXCHANGE TIME: 6.0 min.

VENT AREA: 100 sq.in.

VENT HEIGHT: 10 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20		0	0
Tbar Failure	I	15		0	0
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 50% of time in port and 0% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-213-3-L

Q.M. SHELTER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-162-3-LP	PASSAGE	W2	0	45.5	25	40	30
1-162-3-LP	PASSAGE	W2	0	78.0	25	40	30
1-207-1-A	STOREROOM	W2	0	45.5	25	40	30
2-162-3-LP	PASSAGE	F3	0	14.0	25	300	5
2-210-01-Q	COMPUTER/NAV LAB	F3	0	7.0	25	300	5
01-178-3-W	ROLL STABILIZATION TANK	C3	0	21.0	10	100	5
		--					
			0				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-217-2-A C.G. LOCKER

---

USE: AG Small Storage Spaces -- Gear Lockers

AREA: 22 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 291 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 80,000 BTUs/sq.ft.

VENTILATION: 29 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	3	0	40
Tbar Failure	I	5	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-217-2-A

C.G. LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-207-2-LP	PASSAGE	W2	1	52.0	25	40	30
1-213-2-TS	STAIRCASE	W5	0	72.8	5	80	5
1-223-6-L	Q.M. SHELTER	W6	0	52.0	10	100	5
2-162-2-LP	PASSAGE	F3	0	22.4	25	300	5
01-178-2-W	ROLL STABILIZATION TANK	C3	0	1.2	10	100	5
01-218-8-A	SCIENCE BAGGAGE ROOM	C3	0	21.2	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-218-2-A C.G. LOCKER

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USE: AG Small Storage Spaces -- Gear Lockers

AREA: 36 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 478 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 80,000 BTUs/sq.ft.

VENTILATION: 47 cu ft/min EXCHANGE TIME: 10.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	3	0	40
Tbar Failure	I	5	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-218-2-A

C.G. LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-207-2-LP	PASSAGE	W2	1	59.8	25	40	30
1-210-0-M	SMALL ARMS STOW & REPAIR	W2	0	59.8	25	40	30
1-210-2-Q	MAIL ROOM	W2	0	104.0	25	40	30
1-223-0-C	AFT REPAIR NO.3 & DAMAGE	W6	0	104.0	10	100	5
2-210-01-Q	COMPUTER/NAU LAB	F3	0	36.8	25	300	5
01-218-2-LW	WC & SHR	C3	0	5.2	10	100	5
01-218-4-A	GEAR LOCKER	C3	0	31.6	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-223-0-C      AFT REPAIR NO.3 & DAMAGE CONTROL WORKSHO

USE: C    Ship and fire control operating areas normally occupied.

AREA: 608 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 7,904 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 32,000 BTUs/sq.ft.

VENTILATION: 1,580 cu ft/min  
VENT AREA: 175 sq.in.

EXCHANGE TIME: 5.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	6	0	80
Tbar Failure	I	15	6	0	70
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

2 Hand portable monoammonium phosphate fire extinguisher

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-223-0-C

AFT REPAIR NO.3 & DAMAGE CONTROL WORKSHO

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	\$heat rel
1-162-3-LP PASSAGE	W6	1	78.0	10	100	5
1-210-0-M SMALL ARMS STOW & REPAIR	W6	0	162.5	10	100	5
1-210-1-Q BARBER SHOP	W6	0	110.5	10	100	5
1-213-1-LW WC & WR	W6	0	39.0	10	100	5
1-218-2-A C.G. LOCKER	W6	0	104.0	10	100	5
1-223-2-LP PASSAGE	W2	1	208.0	25	40	30
1-239-0-Q DRY LAB	W2	0	416.0	25	40	30
1-239-1-LP PASSAGE	W2	1	78.0	25	40	30
2-223-0-C ENGINEERING CONTROL CENTE	F3	0	608.0	25	300	5
01-218-5-LP PASSAGE	C3	0	96.0	10	100	5
01-218-6-LP PASSAGE	C3	0	52.9	10	100	5
01-222-0-LW WC & SHR	C3	0	27.0	10	100	5
01-222-1-L SCIENTIST SR	C3	0	184.1	10	100	5
01-222-2-L SCIENTIST SR	C3	0	131.1	10	100	5
01-225-0-L SCIENTIST SR	C3	0	116.9	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-223-2-LP      PASSAGE

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USE: LP      Passageways

AREA: 384 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 4,992 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 998 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 1750 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-223-2-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel	
1-207-2-LP	PASSAGE	W6	1	52.0	10	100	5
1-223-0-C	AFT REPAIR NO.3 & DAMAGE	W2	1	208.0	25	40	30
1-223-4-A	LIFE JACKET LOCKER	W2	0	130.0	25	40	30
1-233-2-A	BOAT GEAR LOCKER	W2	0	78.0	25	40	30
1-239-0-Q	DRY LAB	W2	1	208.0	25	40	30
1-239-2-A	PHOTO LAB	W2	1	208.0	25	40	30
1-255-0-Q	ELECTRONICS LAB	W2	1	208.0	25	40	30
1-255-2-TS	STAIRCASE	W5	1	208.0	5	80	5
1-271-0-Q	WET LAB	W2	1	208.0	25	40	30
1-271-2-Q	RECOMPRESSION AREA & DIVE	W2	0	96.2	25	40	30
1-271-2-Q	RECOMPRESSION AREA & DIVE	W2	2	182.0	25	40	30
1-278-2-TS	STAIRCASE	W5	1	130.0	5	80	5
1-287-2-Q	WET LAB NO.2	W2	1	416.0	25	40	30
1-302-2-LW	WTR WC & SHR	W3	0	65.0	25	60	25
1-307-2-A	ARCTIC GEAR LOCKER--SCIEN	W2	1	150.8	25	40	30
1-319-0-LP	PASSAGE	W2	1	52.0	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	F3	0	120.6	25	300	5
2-251-2-A	BATTERY ROOM	F3	0	15.0	25	300	5
2-256-2-TS	STAIRCASE	F3	0	45.3	25	300	5
2-262-2-QF	FAN ROOM	F3	0	11.1	25	300	5
2-271-4-LP	PASSAGE	F3	0	160.0	25	300	5
2-311-0-Q	WINCH ROOM	F3	0	32.0	25	300	5
01-218-6-LP	PASSAGE	C3	0	64.0	10	100	5
01-239-6-LP	PASSAGE	C3	0	64.0	10	100	5
01-255-6-LP	PASSAGE	C3	0	145.6	10	100	5
01-292-2-LP	PASSAGE	C3	0	110.4	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-223-4-A LIFE JACKET LOCKER

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USE: AG Small Storage Spaces -- Gear Lockers

AREA: 64 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 832 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 120,000 BTUs/sq.ft.

VENTILATION: 83 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	3	0	40
Tbar Failure	I	5	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-223-4-A

LIFE JACKET LOCKER

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-213-2-TS STAIRCASE	W6	0	52.0	10	100	5
1-223-2-LP PASSAGE	W2	0	130.0	25	40	30
1-223-6-L Q.M. SHELTER	W2	0	52.0	25	40	30
1-223-6-L Q.M. SHELTER	W2	0	52.0	25	40	30
1-233-2-A BOAT GEAR LOCKER	W2	0	104.0	25	40	30
2-223-0-C ENGINEERING CONTROL CENTE	F3	0	40.0	25	300	5
2-223-2-LP PASSAGE	F3	0	24.0	25	300	5
01-218-8-A SCIENCE BAGGAGE ROOM	C3	0	64.0	10	100	5
	--					
	0					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-223-6-L Q.M. SHELTER

USE: L Living quarters/medical/dental areas

AREA: 16 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 208 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 34 cu ft/min  
VENT AREA: 100 sq.in.

EXCHANGE TIME: 6.0 min.  
VENT HEIGHT: 10 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20		0	0
Tbar Failure	I	15		0	0
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 50% of time in port and 0% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-223-6-L

Q.M. SHELTER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-217-2-A	C.G. LOCKER	W6	0	52.0	10	100	5
1-223-4-A	LIFE JACKET LOCKER	W2	0	52.0	25	40	30
1-223-4-A	LIFE JACKET LOCKER	W2	0	52.0	25	40	30
2-223-2-LP	PASSAGE	F3	0	16.0	25	300	5
01-218-8-A	SCIENCE BAGGAGE ROOM	C3	0	16.0	10	100	5
			--				
			0				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-233-2-A BOAT GEAR LOCKER

-----

USE: AG Small Storage Spaces -- Gear Lockers

AREA: 48 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 624 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 2,080,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 62 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	3	0	40
Tbar Failure	I	20	3	0	30
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-233-2-A

BOAT GEAR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W2	0	78.0	25	40	30
1-223-4-A	LIFE JACKET LOCKER	W2	0	104.0	25	40	30
1-239-2-A	PHOTO LAB	W2	0	104.0	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	F3	0	24.0	25	300	5
2-223-2-LP	PASSAGE	F3	0	24.0	25	300	5
01-218-8-A	SCIENCE BAGGAGE ROOM	C3	0	48.0	10	100	5
		--					
			0				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-239-0-Q      DRY LAB

-----

USE: QS    Scientific Spaces

AREA: 488 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 6,344 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 32,000 BTUs/sq.ft.

VENTILATION: 1,586 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
			Time		
Fire Origin		15	6	0	30
Tbar Failure		0	6	0	40
Dbar Failure		0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

1 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-239-0-Q

DRY LAB

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-0-C AFT REPAIR NO.3 & DAMAGE	W2	0	416.0	25	40	30
1-223-2-LP PASSAGE	W2	1	208.0	25	40	30
1-239-1-LP PASSAGE	W2	1	83.2	25	40	30
1-245-1-Q SCIENCE REEFER MACHY. ROO	W2	0	32.5	25	40	30
1-245-1-Q SCIENCE REEFER MACHY. ROO	W2	0	124.8	25	40	30
1-255-0-Q ELECTRONICS LAB	W2	0	234.0	25	40	30
1-255-1-A REEFER	W2	0	149.5	25	40	30
2-223-0-C ENGINEERING CONTROL CENTE	F3	0	488.0	25	300	5
01-218-5-LP PASSAGE	C3	0	54.0	10	100	5
01-239-1-LW WC & SHR	C3	0	27.0	10	100	5
01-239-2-LW WC & SHR	C3	0	27.0	10	100	5
01-239-3-L SCIENTIST SR	C3	0	151.0	10	100	5
01-239-4-L SCIENTIST SR	C3	0	165.0	10	100	5
01-239-6-LP PASSAGE	C3	0	64.0	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-239-1-LP      PASSAGE

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USE: LP      Passageways

AREA:    38 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:      499 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0001

FUEL LOAD:      3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION:      99 cu ft/min      EXCHANGE TIME:      5.0 min.  
VENT AREA:    500 sq.in.      VENT HEIGHT:    12 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	95	20	0	20
Tbar Failure	80	20	0	30
Dbar Failure	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    30% of time in port and    50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1    Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1    1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-239-1-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-0-C	AFT REPAIR NO.3 & DAMAGE	W2	1	78.0	25	40	30
1-239-0-Q	DRY LAB	W2	1	83.2	25	40	30
1-245-1-Q	SCIENCE REEFER MACHY. ROO	W2	1	78.0	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	F3	0	38.4	25	300	5
01-218-5-LP	PASSAGE	C3	0	38.4	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-239-2-A PHOTO LAB

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 128 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,664 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 120,000 BTUs/sq.ft.

Fuel load in psf = 15 x height of deck.

VENTILATION: 166 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	20
Tbar Failure	I	10	5	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-239-2-A

PHOTO LAB

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W2	1	208.0	25	40	30
1-233-2-A	BOAT GEAR LOCKER	W2	0	104.0	25	40	30
1-255-2-TS	STAIRCASE	W5	0	104.0	5	80	5
2-223-0-C	ENGINEERING CONTROL CENTE	F3	0	47.6	25	300	5
2-223-2-LP	PASSAGE	F3	0	64.0	25	300	5
2-251-2-A	BATTERY ROOM	F3	0	16.4	25	300	5
01-239-8-A	FAN ROOM	C3	0	128.0	10	100	5

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1

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-245-1-Q SCIENCE REEFER MACHY. ROOM

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 81 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,060 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0033

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 530 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	20
Tbar Failure	I	100	999	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 1% of time in port and 1% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-245-1-Q

SCIENCE REEFER MACHY. ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-239-0-Q	DRY LAB	W2	0	32.5	25	40	30
1-239-0-Q	DRY LAB	W2	0	124.8	25	40	30
1-239-1-LP	PASSAGE	W2	1	78.0	25	40	30
1-255-1-A	REEFER	W2	0	110.5	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	F3	0	78.4	25	300	5
2-223-1-LP	PASSAGE	F3	0	3.2	25	300	5
01-218-5-LP	PASSAGE	C3	0	67.6	10	100	5
01-239-3-L	SCIENTIST SR	C3	0	14.0	10	100	5

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1

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-255-0-Q ELECTRONICS LAB

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 288 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 3,744 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 28,000 BTUs/sq.ft.

VENTILATION: 624 cu ft/min

EXCHANGE TIME: 6.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	15	6	0	20
Tbar Failure	I	10	6	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-255-0-Q

ELECTRONICS LAB

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W2	1	208.0	25	40	30
1-239-0-Q	DRY LAB	W2	0	234.0	25	40	30
1-255-1-A	REEFER	W2	0	208.0	25	40	30
1-271-0-Q	WET LAB	W6	0	234.0	10	100	5
2-223-0-C	ENGINEERING CONTROL CENTE	F3	0	88.2	25	300	5
2-262-1-Q	IC/GYRO ROOM	F3	0	22.2	25	300	5
2-262-2-QF	FAN ROOM	F3	0	177.6	25	300	5
01-255-0-L	SCIENTIST SR	C3	0	112.0	10	100	5
01-255-2-L	SCIENTIST SR	C3	0	150.8	10	100	5
01-255-4-LW	WC & SHR	C3	0	25.2	10	100	5
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			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-255-1-A REEFER

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USE: AR Refrigerated Storage Spaces

AREA: 320 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 4,160 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,200,000 BTUs/sq.ft.

VENTILATION: cu ft/min EXCHANGE TIME: min.  
VENT AREA: sq.in. VENT HEIGHT: 0 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	60	999	0	0
Tbar Failure	I	50	999	0	0
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-255-1-A

REEFER

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-239-0-Q DRY LAB	W2	0	149.5	25	40	30
1-245-1-Q SCIENCE REEFER MACHY. ROO	W2	0	110.5	25	40	30
1-255-0-Q ELECTRONICS LAB	W2	0	208.0	25	40	30
1-271-0-Q WET LAB	W6	1	260.0	10	100	5
2-223-0-C ENGINEERING CONTROL CENTE	F3	0	67.9	25	300	5
2-223-1-LP PASSAGE	F3	0	32.0	25	300	5
2-262-1-Q IC/GYRO ROOM	F3	0	220.1	25	300	5
01-218-5-LP PASSAGE	C3	0	96.0	10	100	5
01-255-0-L SCIENTIST SR	C3	0	25.5	10	100	5
01-255-1-LW WC & SHR	C3	0	22.5	10	100	5
01-255-3-L SCIENTIST SR	C3	0	149.3	10	100	5
01-255-5-LW WC & SHR	C3	0	26.7	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-255-2-TS STAIRCASE

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USE: TS Staircases

AREA: 128 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 1,664 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 332 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-255-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W5	1	208.0	5	80	5
1-239-2-A	PHOTO LAB	W5	0	104.0	5	80	5
1-271-2-Q	RECOMPRESSION AREA & DIVE	W6	0	104.0	10	100	5
2-223-2-LP	PASSAGE	F3	0	64.0	25	300	5
2-251-2-A	BATTERY ROOM	F3	0	3.6	25	300	5
2-256-2-TS	STAIRCASE	F3	1	60.4	25	300	5
01-255-10-A	STOREROOM	C3	0	64.0	10	100	5
01-255-8-A	XFMR FEET HELO	C3	0	25.6	10	100	5
01-261-2-TS	STAIRCASE	C3	1	38.4	10	100	5
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		3					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-271-0-Q      WET LAB

-----

USE: QS      Scientific Spaces

AREA: 784 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 10,192 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 16,000 BTUs/sq.ft.

VENTILATION: 2,548 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
-----	-----	-----	-----	-----	-----
Fire Origin	I	70	8	0	30
Tbar Failure	I	0	8	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

1 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-271-0-Q

WET LAB

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-2-LP PASSAGE	W2	1	208.0	25	40	30
1-255-0-Q ELECTRONICS LAB	W6	0	234.0	10	100	5
1-255-1-A REEFER	W6	1	260.0	10	100	5
1-287-2-Q WET LAB NO.2	W2	0	104.0	25	40	30
1-287-2-Q WET LAB NO.2	W2	0	208.0	25	40	30
1-295-1-Q VESTIBULE	W2	1	286.0	25	40	30
2-271-1-L CREW BERTHING	F3	0	245.6	25	300	5
2-271-2-L CREW BERTHING	F3	0	213.6	25	300	5
2-271-3-LP PASSAGE	F3	0	112.8	25	300	5
2-279-1-TS STAIRCASE	F3	0	18.0	25	300	5
2-281-1-LW WR WC & SHR	F3	0	74.4	25	300	5
2-281-2-LW WR WC & SHR	F3	0	42.4	25	300	5
2-284-1-LW WR WC & SHR	F3	0	13.2	25	300	5
2-291-1-LW WR WC & SHR	F3	0	32.0	25	300	5
2-291-3-L CREW BERTHING	F3	0	32.0	25	300	5
01-218-5-LP PASSAGE	C3	0	56.1	10	100	5
01-271-1-L SCIENTIST SR	C3	0	229.7	10	100	5
01-271-2-Q SCIENTIST LIBRARY/CONFERE	C3	0	256.0	10	100	5
01-277-1-LW WC & SHR	C3	0	25.0	10	100	5
01-277-3-LW WC & SHR	C3	0	25.0	10	100	5
01-277-5-L SCIENTIST SR	C3	0	192.2	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-271-2-Q RECOMPRESSION AREA & DIVE GEAR LOCKER

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 525 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 6,832 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 16,000 BTUs/sq.ft.

VENTILATION: 976 cu ft/min

EXCHANGE TIME: 7.0 min.

VENT AREA: 225 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	4	0	20
Tbar Failure	I	20	4	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 15% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-271-2-Q

## RECOMPRESSION AREA &amp; DIVE GEAR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W2	0	96.2	25	40	30
1-223-2-LP	PASSAGE	W2	2	182.0	25	40	30
1-255-2-TS	STAIRCASE	W6	0	104.0	10	100	5
1-278-2-TS	STAIRCASE	W5	0	52.0	5	80	5
1-278-2-TS	STAIRCASE	W5	0	52.0	5	80	5
1-278-2-TS	STAIRCASE	W5	0	130.0	5	80	5
1-302-2-LW	WTR WC & SHR	W3	0	65.0	25	60	25
1-302-2-LW	WTR WC & SHR	W3	1	91.0	25	60	25
1-307-2-A	ARCTIC GEAR LOCKER--SCIEN	W2	0	104.0	25	40	30
2-271-4-LP	PASSAGE	F3	0	31.2	25	300	5
2-271-6-L	CREW BERTHING	F3	0	157.9	25	300	5
2-275-2-TS	STAIRCASE	F3	1	66.0	25	300	5
2-284-2-LW	WR WC & SHR	F3	0	119.6	25	300	5
2-295-2-L	CREW BERTHING	F3	0	100.9	25	300	5
2-295-4-LW	WR WC & SHR	F3	0	50.0	25	300	5
01-255-6-LP	PASSAGE	C3	1	59.2	10	100	5
01-271-4-L	SCIENTIST SR	C3	0	118.6	10	100	5
01-271-6-LW	WR WC & SHR	C3	0	38.7	10	100	5
01-271-8-L	SCIENTIST SR	C3	0	54.3	10	100	5
01-278-2-LW	WR WC & SHR	C3	0	39.2	10	100	5
01-292-2-LP	PASSAGE	C3	0	3.7	10	100	5
01-292-4-L	SCIENTIST SR	C3	0	117.3	10	100	5
01-292-6-LW	WR WC & SHR	C3	0	34.3	10	100	5
01-292-8-L	SCIENTIST SR	C3	0	18.6	10	100	5
01-298-2-LW	WR WC & SHR	C3	0	41.6	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-278-2-TS STAIRCASE

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USE: TS Staircases

AREA: 40 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 520 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 0 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 104 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-278-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W5	1	130.0	5	80	5
1-271-2-Q	RECOMPRESSION AREA & DIVE	W5	0	52.0	5	80	5
1-271-2-Q	RECOMPRESSION AREA & DIVE	W5	0	52.0	5	80	5
1-271-2-Q	RECOMPRESSION AREA & DIVE	W5	0	130.0	5	80	5
2-275-2-TS	STAIRCASE	F3	1	38.0	25	300	5
2-284-2-LW	WR WC & SHR	F3	0	2.0	25	300	5
01-255-6-LP	PASSAGE	C3	0	6.0	10	100	5
01-271-4-L	SCIENTIST SR	C3	0	34.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-287-2-Q WET LAB NO.2

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USE: QS Scientific Spaces

AREA: 451 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 5,865 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 16,000 BTUs/sq.ft.

VENTILATION: 1,466 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	70	6	0	30
Tbar Failure	I	0	6	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

1 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-287-2-Q

WET LAB NO.2

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W2	1	416.0	25	40	30
1-271-0-Q	WET LAB	W2	0	104.0	25	40	30
1-271-0-Q	WET LAB	W2	0	208.0	25	40	30
1-295-1-Q	VESTIBULE	W2	1	213.2	25	40	30
1-311-2-T	ELEVATOR	W5	0	98.8	5	80	5
1-311-2-T	ELEVATOR	W6	1	104.0	10	100	5
1-319-0-LP	PASSAGE	W2	0	104.0	25	40	30
2-271-2-L	CREW BERTHING	F3	0	32.0	25	300	5
2-271-4-LP	PASSAGE	F3	0	73.6	25	300	5
2-281-2-LW	WR WC & SHR	F3	0	32.0	25	300	5
2-291-2-LW	WR WC & SHR	F3	0	40.0	25	300	5
2-291-4-L	CREW BERTHING	F3	0	206.4	25	300	5
2-311-0-Q	WINCH ROOM	F3	0	64.0	25	300	5
2-311-2-T	ELEVATOR	F3	0	3.2	25	300	5
01-271-2-Q	SCIENTIST LIBRARY/CONFERE	C3	0	394.4	10	100	5
01-311-2-Q	HOIST EQPT ROOM	C3	0	4.0	10	100	5
01-312-2-Q	SCIENTIST COMM CENTER	C3	0	52.8	10	100	5

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-295-1-Q VESTIBULE (MAIN DECK LEVEL)  
Zero strength barrier above.

USE: QS Scientific Spaces

AREA: 528 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 6,864 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 24,000 BTUs/sq.ft.

VENTILATION: 1,372 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 200 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	90	999	0	30
Tbar Failure	I	90	999	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 20% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

- 1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-295-1-Q

VESTIBULE (MAIN DECK LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-271-0-Q	WET LAB	W2	1	286.0	25	40	30
1-287-2-Q	WET LAB NO.2	W2	1	213.2	25	40	30
1-311-2-T	ELEVATOR	W5	2	98.8	5	80	5
1-319-0-LP	PASSAGE	W2	0	208.0	25	40	30
2-271-3-LP	PASSAGE	F3	0	137.6	25	300	5
2-291-1-LW	WR WC & SHR	F3	0	8.0	25	300	5
2-291-3-L	CREW BERTHING	F3	0	174.4	25	300	5
2-295-1-LW	WR WC & SHR	F3	0	10.0	25	300	5
2-295-3-L	CREW BERTHING	F3	0	21.2	25	300	5
2-311-0-Q	WINCH ROOM	F3	0	176.0	25	300	5
01-295-1-Q	VESTIBULE (01 LEVEL)	C0	0	528.0	0	0	100

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-302-2-LW      WTR WC & SHR

-----

USE: LW    Wash room, water closet and shower areas

AREA:    35 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:        455 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:        4,000 BTUs/sq.ft.

VENTILATION:        113 cu ft/min

EXCHANGE TIME:        4.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-302-2-LW

WTR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
1-223-2-LP	PASSAGE	W3	0	65.0	25	60	25
1-271-2-Q	RECOMPRESSION AREA & DIVE	W3	0	65.0	25	60	25
1-271-2-Q	RECOMPRESSION AREA & DIVE	W3	1	91.0	25	60	25
1-307-2-A	ARCTIC GEAR LOCKER--SCIEN	W3	0	91.0	25	60	25
2-295-2-L	CREW BERTHING	F3	0	35.0	25	300	5
01-292-2-LP	PASSAGE	C3	0	3.5	10	100	5
01-292-4-L	SCIENTIST SR	C3	0	31.5	10	100	5
		--	1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-307-2-A ARCTIC GEAR LOCKER--SCIENTIST

USE: AG Small Storage Spaces -- Gear Lockers

AREA: 220 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 2,862 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 120,000 BTUs/sq.ft.

Based on hanging wetsuits or parkas

VENTILATION: 286 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	5	3	0	40
Tbar Failure	I	5	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-307-2-A

ARCTIC GEAR LOCKER--SCIENTIST

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-2-LP PASSAGE	W2	1	150.8	25	40	30
1-271-2-Q RECOMPRESSION AREA & DIVE	W2	0	104.0	25	40	30
1-302-2-LW WTR WC & SHR	W3	0	91.0	25	60	25
1-319-0-LP PASSAGE	W2	0	102.7	25	40	30
1-319-0-LP PASSAGE	W2	0	104.0	25	40	30
2-295-2-L CREW BERTHING	F3	0	53.7	25	300	5
2-311-0-Q WINCH ROOM	F3	0	166.5	25	300	5
01-292-2-LP PASSAGE	C3	0	58.0	10	100	5
01-311-4-LW WR WC & SHR	C3	0	38.0	10	100	5
01-311-6-L SCIENTIST SR	C3	0	73.0	10	100	5
01-319-0-C SCIENCE & WINCH CONTROL S	C3	0	46.6	10	100	5

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-311-2-T      ELEVATOR

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USE: T    Elevators, dumb waiters

AREA:    60 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:        790 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD:        4,000 BTUs/sq.ft.

Accumulated dust and grease and cable insulation

VENTILATION:        395 cu ft/min

EXCHANGE TIME:        2.0 min.

VENT AREA:        10 sq.in.

VENT HEIGHT:        1 in.

FIRE STARTED DUE TO:

	I	I	FRI Time	A	M
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-311-2-T

ELEVATOR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-287-2-Q	WET LAB NO.2	W5	0	98.8	5	80	5
1-287-2-Q	WET LAB NO.2	W6	1	104.0	10	100	5
1-295-1-Q	VESTIBULE	W5	2	98.8	5	80	5
1-319-0-LP	PASSAGE	W5	0	104.0	5	80	5
2-311-2-T	ELEVATOR	F3	0	60.8	25	300	5
01-311-2-Q	HOIST EQPT ROOM	C3	0	60.8	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-319-0-LP      PASSAGE

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USE: LP      Passageways

AREA: 347 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 4,518 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 903 cu ft/min      EXCHANGE TIME: 5.0 min.  
VENT AREA: 125 sq.in.      VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-319-0-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-223-2-LP PASSAGE	W2	1	52.0	25	40	30
1-287-2-Q WET LAB NO.2	W2	0	104.0	25	40	30
1-295-1-Q VESTIBULE	W2	0	208.0	25	40	30
1-307-2-A ARCTIC GEAR LOCKER--SCIEN	W2	0	102.7	25	40	30
1-307-2-A ARCTIC GEAR LOCKER--SCIEN	W2	0	104.0	25	40	30
1-311-2-T ELEVATOR	W5	0	104.0	5	80	5
1-326-0-Q VENT TRUNK	W2	0	104.0	25	40	30
2-311-0-Q WINCH ROOM	F3	0	344.4	25	300	5
2-311-2-T ELEVATOR	F3	0	3.2	25	300	5
01-319-0-C SCIENCE & WINCH CONTROL S	C3	0	347.6	10	100	5

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1

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-326-0-Q      VENT TRUNK

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USE: Q    Areas usually unoccupied:    engineering, electronics, galleys

AREA:    144 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:    1,882 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0000

FUEL LOAD:                    0 BTUs/sq.ft.

VENTILATION:            941 cu ft/min      EXCHANGE TIME:            2.0 min.  
VENT AREA:            sq.in.            VENT HEIGHT:            0 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0		0	20
Tbar Failure	I	0		0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    25% of time in port and    50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1    1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-326-0-Q

VENT TRUNK

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-319-0-LP	PASSAGE	W2	0	104.0	25	40	30
1-344-0-K	HAZARDOUS METALS ROOM	W6	0	104.0	10	100	5
2-311-0-Q	WINCH ROOM	F3	0	128.8	25	300	5
2-343-0-A	HAUSER STORES & SCIENCE C	F3	0	16.0	25	300	5
01-319-0-C	SCIENCE & WINCH CONTROL S	C3	0	144.8	10	100	5
		--					
			0				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-328-1-Q PORTABLE VAN

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USE: QS Scientific Spaces

AREA: 160 sq.ft. DECK HEIGHT: 13.0 ft. VOLUME: 2,080 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0000

FUEL LOAD: 0 BTUs/sq.ft.

VENTILATION: 0 cu ft/min

EXCHANGE TIME: 0.0 min.

VENT AREA: sq.in.

VENT HEIGHT: 0 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I			0	0
Tbar Failure	I	0		0	0
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-328-1-Q

PORTABLE VAN

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-311-0-Q	WINCH ROOM	F3	0	116.8	25	300	5
2-343-0-A	HAWSER STORES & SCIENCE C	F3	0	43.2	25	300	5
			-- 0				

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-328-2-Q      PORTABLE VAN

-----

USE: QS    Scientific Spaces

AREA: 160 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 2,080 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0000

FUEL LOAD:            0 BTUs/sq.ft.

VENTILATION:            0 cu ft/min

EXCHANGE TIME:            0.0 min.

VENT AREA:            sq.in.

VENT HEIGHT:            0 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I			0	0
Tbar Failure	I	0		0	0
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-328-2-Q

PORTABLE VAN

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-311-0-Q	WINCH ROOM	F3	0	116.9	25	300	5
2-343-0-A	HAUSER STORES & SCIENCE C	F3	0	43.2	25	300	5
		--					
			0				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-328-4-Q      PORTABLE VAN

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USE: QS    Scientific Spaces

AREA: 160 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME: 2,080 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0000

FUEL LOAD:            0 BTUs/sq.ft.

VENTILATION:            0 cu ft/min

EXCHANGE TIME:            0.0 min.

VENT AREA:            sq.in.

VENT HEIGHT:            0 in.

FIRE STARTED DUE TO:

	I	I	FRI	H	M
	I		Time		
Fire Origin	I			0	0
Tbar Failure	I	0		0	0
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-328-4-Q

PORTABLE VAN

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-311-0-Q	WINCH ROOM	F3	0	135.7	25	300	5
2-343-0-A	HAWSER STORES & SCIENCE C	F3	0	21.0	25	300	5
2-343-2-A	BOSN'S LOCKER	F3	0	3.3	25	300	5
			--				
			0				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 1-344-0-K      HAZARDOUS MATLS. ROOM

---

USE: K    Stowage of chemicals/dangerous materials; not gas and oil

AREA:    48 sq.ft.    DECK HEIGHT: 13.0 ft.    VOLUME:      624 cu.ft.

UNACCEPTABLE LOSS: Code 1 (Fire reaches established burning.)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0015

FUEL LOAD:      22,666 BTUs/sq.ft.

Misc. Class A - Assumes several cans fail

VENTILATION:      156 cu ft/min

EXCHANGE TIME:      4.0 min.

VENT AREA:    10 sq.in.

VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	2	0	10
Tbar Failure	I	25	2	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    0% of time in port and    0% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 1-344-0-K

HAZARDOUS MATLS. ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
1-326-0-Q	VENT TRUNK	W6	0	104.0	10	100	5
2-343-0-A	HAUSER STORES & SCIENCE C	F3	0	48.0	25	300	5
01-319-0-C	SCIENCE & WINCH CONTROL S	C3	0	48.0	10	100	5
			--				
			0				

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-4-0-A                      STOREROOM

-----

USE: AS    Storerooms

AREA: 494 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 4,452 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,440,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 445 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	6	0	50
Tbar Failure	I	20	6	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-4-0-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-014-0-W	PEAK TANK	W6	0	96.3	10	100	5
2-014-0-W	PEAK TANK	W6	0	96.3	10	100	5
2-22-0-A	STOREROOM	W2	0	183.6	25	40	30
2-22-0-A	STOREROOM	W2	1	183.6	25	40	30
3-4-0-A	STOREROOM	F3	1	86.2	25	300	5
1-028-0-K	FLAMMABLE LIQUIDS STORERO	C3	0	2.4	10	100	5
1-4-0-A	STOREROOM	C3	0	395.8	10	100	5
1-4-2-Q	BOW BOOM INSTRUMENT ROOM	C3	0	96.5	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-22-0-A                      STOREROOM

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USE: AS      Storerooms

AREA: 1274 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 11,470 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,440,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 1,147 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 20 sq.in.

VENT HEIGHT: 2 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	8	70	40
Tbar Failure	I	20	8	50	60
Dbar Failure	I	10	*	10	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

- 1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

- 1 Seawater sprinkler system - remotely activated

MANUAL FIRE FIGHTING EQUIPMENT:

- 2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-22-0-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-4-0-A	STOREROOM	W2	0	183.6	25	40	30
2-4-0-A	STOREROOM	W2	1	183.6	25	40	30
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	1	201.6	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	0	293.4	10	100	5
2-49-1-A	SEA BAG LOCKER	W2	0	92.7	25	40	30
3-22-0-A	STOREROOM	F3	1	738.6	25	300	5
3-4-0-A	STOREROOM	F3	0	1.3	25	300	5
1-22-0-Q	ANCHOR WINDLASS MACHINERY	C3	1	1264.8	10	100	5
1-4-0-A	STOREROOM	C3	0	5.8	10	100	5
1-49-0-Q	FAN ROOM	C3	0	1.3	10	100	5
1-49-1-LP	PASSAGE	C3	0	1.2	10	100	5
1-49-5-Q	REEFER MACHINERY ROOM	C3	0	3.3	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-49-0-AA SCIENCE STORAGE--UPPER CARGO HOLD

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USE: AA Cargo Holds

AREA: 3007 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 27,069 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,800,000 BTUs/sq.ft.

Loaded cardboard boxes--Fuel load in psf = 25 x height of deck.

VENTILATION: 2,706 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 100 sq.in.

VENT HEIGHT: 20 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	13	70	40
Tbar Failure	I	20	13	50	60
Dbar Failure	I	10	*	10	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

2 Hand portable monoammonium phosphate fire extinguisher

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Seawater sprinkler system - remotely activated

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-49-0-AA

SCIENCE STORAGE--UPPER CARGO HOLD

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel	
2-100-0-LP	PASSAGE	W6	1	36.0	10	100	5
2-100-0-LP	PASSAGE	W6	1	72.0	10	100	5
2-100-1-L	CREW BERTHING	W6	0	144.0	10	100	5
2-100-2-L	CREW BERTHING	W6	0	153.0	10	100	5
2-100-3-A	GEAR LOCKER	W6	0	36.0	10	100	5
2-22-0-A	STOREROOM	W6	1	201.6	10	100	5
2-22-0-A	STOREROOM	W6	0	293.4	10	100	5
2-49-1-A	SEA BAG LOCKER	W6	1	136.8	10	100	5
2-61-1-M	SMALL ARMS & DEM MAG	W6	1	90.9	10	100	5
2-65-1-Q	ENGINEERING STOREROOM	W6	1	326.7	10	100	5
2-65-2-C	FORWARD REPAIR NO.3	W6	1	134.1	10	100	5
2-65-2-C	FORWARD REPAIR NO.3	W6	0	326.7	10	100	5
2-95-2-Q	FWD IC/GYRO ROOM	W6	0	49.5	10	100	5
2-95-2-Q	FWD IC/GYRO ROOM	W6	0	49.5	10	100	5
2-95-2-Q	FWD IC/GYRO ROOM	W6	1	63.0	10	100	5
3-22-0-A	STOREROOM	F3	0	1.0	25	300	5
3-46-1-U	VOID SPACE	F3	0	596.6	25	300	5
3-46-2-U	VOID SPACE	F3	0	672.0	25	300	5
3-49-0-AA	CARGO HOLD	F3	1	1509.5	25	300	5
1-49-0-Q	FAN ROOM	C3	0	234.9	10	100	5
1-49-1-LP	PASSAGE	C3	0	372.3	10	100	5
1-49-2-LP	PASSAGE	C3	1	532.2	10	100	5
1-49-3-A	FROZEN STOREROOM NO.1	C3	0	171.5	10	100	5
1-49-4-A	STOREROOM	C3	0	486.5	10	100	5
1-49-5-Q	REEFER MACHINERY ROOM	C3	0	70.9	10	100	5
1-52-0-LP	PASSAGE	C3	1	465.5	10	100	5
1-61-1-A	THAW STOREROOM	C3	0	112.6	10	100	5
1-61-3-A	CHILL STOREROOM	C3	0	70.3	10	100	5
1-64-2-A	DRY PROVISION STOREROOM	C3	0	276.5	10	100	5
1-81-1-A	FROZEN STOREROOM NO.2	C3	0	211.0	10	100	5
1-89-2-QO	COMMISSARY OFFICE	C3	0	9.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-49-1-A      SEA BAG LOCKER

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USE: AG    Small Storage Spaces -- Gear Lockers

AREA: 168 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 1,512 cu.ft.

UNACCEPTABLE LOSS: Code 6 (4 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 80,000 BTUs/sq.ft.

VENTILATION: 151 cu ft/min      EXCHANGE TIME: 10.0 min.  
VENT AREA: 10 sq.in.      VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	40
Tbar Failure	I	10	5	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.  
Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-49-1-A

SEA BAG LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-22-0-A	STOREROOM	W2	0	92.7	25	40	30
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	1	136.8	10	100	5
2-61-1-M	SMALL ARMS & DEM MAG	W2	0	119.7	25	40	30
3-46-1-U	VOID SPACE	F3	0	28.2	25	300	5
1-49-3-A	FROZEN STOREROOM NO.1	C3	0	24.3	10	100	5
1-49-5-Q	REEFER MACHINERY ROOM	C3	0	143.7	10	100	5
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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-61-1-M SMALL ARMS & DEM MAG

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USE: M Ammunition (stowages and handling)

AREA: 133 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 1,203 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200,000 BTUs/sq.ft.

VENTILATION: 300 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	5	3	90	0
Tbar Failure	I	25	3	40	0
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 0% of time at sea.

Automatic:

FIRST AID FIRE PROTECTION:

AUTOMATED FIRE PROTECTION SYSTEMS:

- 1 Seawater sprinkler system - remotely activated

MANUAL FIRE FIGHTING EQUIPMENT:

- 2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.
- 1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-61-1-M

SMALL ARMS & DEM MAG

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	1	90.9	10	100	5
2-49-1-A	SEA BAG LOCKER	W2	0	119.7	25	40	30
2-65-1-Q	ENGINEERING STOREROOM	W2	0	134.1	25	40	30
3-46-1-U	VOID SPACE	F3	0	41.6	25	300	5
1-49-3-A	FROZEN STOREROOM NO.1	C3	0	131.4	10	100	5
1-49-5-Q	REEFER MACHINERY ROOM	C3	0	2.3	10	100	5
		--					
			1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-65-1-Q ENGINEERING STOREROOM

---

USE: AS Storerooms

AREA: 586 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 5,278 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 120,000 BTUs/sq.ft.

VENTILATION: 754 cu ft/min

EXCHANGE TIME: 7.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	15	6	0	30
Tbar Failure	I	5	6	0	20
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-65-1-Q

ENGINEERING STOREROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-5-A STACK CHAIR LOCKER	W6	0	45.0	10	100	5
2-100-7-LL CREW LOUNGE	W6	0	94.5	10	100	5
2-49-0-AA SCIENCE STORAGE--UPPER CA	W6	1	326.7	10	100	5
2-61-1-M SMALL ARMS & DEM MAG	W2	0	134.1	25	40	30
3-46-1-U VOID SPACE	F3	0	338.4	25	300	5
1-49-1-LP PASSAGE	C3	0	60.6	10	100	5
1-49-3-A FROZEN STOREROOM NO.1	C3	0	78.8	10	100	5
1-49-7-U VOID SPACE	C3	0	16.1	10	100	5
1-61-3-A CHILL STOREROOM	C3	0	217.0	10	100	5
1-81-1-A FROZEN STOREROOM NO.2	C3	0	212.8	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-65-2-C FORWARD REPAIR NO.3

USE: C Ship and fire control operating areas normally occupied.

AREA: 586 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 5,278 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 32,000 BTUs/sq.ft.

VENTILATION: 1,055 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	6	0	80
Tbar Failure	I	15	6	0	70
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-65-2-C

FORWARD REPAIR NO.3

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-4-L	CREW BERTHING	W6	0	139.5	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	1	134.1	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	0	326.7	10	100	5
3-46-2-U	VOID SPACE	F3	0	338.4	25	300	5
1-49-4-A	STOREROOM	C3	0	50.1	10	100	5
1-64-2-A	DRY PROVISION STOREROOM	C3	0	368.0	10	100	5
1-89-2-QO	COMMISSARY OFFICE	C3	0	79.0	10	100	5
1-89-4-A	SODA STORAGE 1000 CASES	C3	0	89.4	10	100	5
		--					
			1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-95-2-Q FWD IC/GYRO ROOM

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 38 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 346 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 173 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	5	0	20
Tbar Failure	I	20	5	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-95-2-Q

FWD IC/GYRO ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-100-2-L	CREW BERTHING	W6	0	63.0	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	0	49.5	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	0	49.5	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	1	63.0	10	100	5
3-49-0-AA	CARGO HOLD	F3	0	38.5	25	300	5
1-52-0-LP	PASSAGE	C3	0	38.5	10	100	5
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			1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-100-0-LP      PASSAGE

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USE: LP      Passageways

AREA: 969 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 8,724 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 1,744 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 2625 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	95	20	0	40
Tbar Failure	80	20	0	60
Dbar Failure	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 100 ft.

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

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Compartment: 2-100-0-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-100-1-L CREW BERTHING	W2	0	18.0	25	40	30
2-100-1-L CREW BERTHING	W2	1	45.0	25	40	30
2-100-2-L CREW BERTHING	W2	1	180.0	25	40	30
2-100-3-A GEAR LOCKER	W2	1	49.5	25	40	30
2-100-4-L CREW BERTHING	W2	1	180.0	25	40	30
2-100-5-A STACK CHAIR LOCKER	W2	0	36.0	25	40	30
2-100-7-LL CREW LOUNGE	W2	2	270.0	25	40	30
2-105-1-TS STAIRCASE	W5	1	85.5	5	80	5
2-121-3-L CREW BERTHING	W2	1	173.7	25	40	30
2-121-3-L CREW BERTHING	W2	0	198.0	25	40	30
2-121-4-L CREW BERTHING	W2	1	173.7	25	40	30
2-121-4-L CREW BERTHING	W2	0	216.0	25	40	30
2-125-2-LW WR WC & SHR	W3	0	90.0	25	60	25
2-130-2-QO EXO OFFICE	W2	1	135.0	25	40	30
2-134-1-LL CREW STUDY	W2	1	126.0	25	40	30
2-145-0-TU UPTAKE 1	W2	0	288.0	80	100	5
2-145-1-T MACHINERY HOIST	W5	1	54.0	5	80	5
2-145-1-T MACHINERY HOIST	W5	0	72.0	5	80	5
2-145-2-TS STAIRCASE	W5	0	18.0	5	80	5
2-145-2-TS STAIRCASE	W5	0	54.0	5	80	5
2-145-2-TS STAIRCASE	W5	1	99.0	5	80	5
2-146-2-Q ENGINEERING LOG & DAMAGE	W2	1	146.7	25	40	30
2-148-1-Q ATHLETIC GEAR LOCKER	W2	0	36.0	25	40	30
2-148-3-Q WEIGHT ROOM & GYM	W2	1	83.7	25	40	30
2-154-1-A STOREROOM	W2	1	70.2	25	40	30
2-157-2-A GEAR LOCKER	W2	1	43.2	25	40	30
2-162-1-TS STAIRCASE	W6	0	9.0	10	100	5
2-162-2-LP PASSAGE	W6	1	72.0	10	100	5
2-162-3-LP PASSAGE	W6	1	45.0	10	100	5
2-49-0-AA SCIENCE STORAGE--UPPER CA	W6	1	36.0	10	100	5
2-49-0-AA SCIENCE STORAGE--UPPER CA	W6	1	72.0	10	100	5
3-100-0-E ENGINE ROOM NO.1	F3	0	662.8	25	300	5
3-100-1-F OIL TANK	F3	0	108.0	25	300	5
3-100-2-F OIL TANK	F3	0	101.3	25	300	5
3-127-1-F OIL TANK	F3	0	38.0	25	300	5
3-127-2-F OIL TANK	F3	0	38.0	25	300	5
3-145-1-U VOID SPACE	F3	0	7.7	25	300	5
3-145-2-F OIL TANK	F3	0	7.7	25	300	5
1-100-0-LP PASSAGE	C3	0	1.0	10	100	5
1-100-1-TS STAIRCASE	C3	0	29.0	10	100	5
1-100-2-LP PASSAGE	C3	0	166.6	10	100	5
1-100-3-LP PASSAGE	C3	0	245.2	10	100	5
1-100-4-LW WR & SHR	C3	0	10.0	10	100	5
1-100-5-LL CREW MESS	C3	0	122.6	10	100	5
1-100-6-Q SHIP LIBRARY	C3	0	38.0	10	100	5
1-105-0-Q GALLEY	C3	0	132.0	10	100	5
1-124-2-LL CPO MESSROOM & LOUNGE	C3	0	74.6	10	100	5
1-132-1-Q INCINERATOR ROOM	C3	0	124.0	10	100	5
1-138-1-T DUMB WAITER	C3	0	8.0	10	100	5
1-145-0-TU UPTAKE 1	C3	0	6.4	10	100	5
1-145-1-T MACHINERY HOIST ROOM	C3	0	1.2	10	100	5
1-145-2-TS STAIRCASE	C3	0	10.8	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-100-1-L CREW BERTHING

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USE: L8 Berthing Space for 8

AREA: 269 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,423 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 38,025 BTUs/sq.ft.  
No. of people x 160/compartment area

VENTILATION: 403 cu ft/min EXCHANGE TIME: 6.0 min.  
VENT AREA: 325 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
-----	-----	-----	-----	-----	-----
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-100-1-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP PASSAGE	W2	0	18.0	25	40	30
2-100-0-LP PASSAGE	W2	1	45.0	25	40	30
2-100-2-L CREW BERTHING	W2	0	90.0	25	40	30
2-100-3-A GEAR LOCKER	W2	0	49.5	25	40	30
2-105-1-TS STAIRCASE	W5	0	36.0	5	80	5
2-105-1-TS STAIRCASE	W5	0	85.5	5	80	5
2-111-1-LW WR WC & SHR	W3	1	76.5	25	60	25
2-111-1-LW WR WC & SHR	W3	0	85.5	25	60	25
2-121-1-LW WR WC & SHR	W3	0	18.0	25	60	25
2-121-3-L CREW BERTHING	W2	0	103.5	25	40	30
2-49-0-AA SCIENCE STORAGE--UPPER CA	W6	0	144.0	10	100	5
3-100-0-E ENGINE ROOM NO.1	F3	0	269.3	25	300	5
1-100-0-LP PASSAGE	C3	0	150.0	10	100	5
1-105-0-Q GALLEY	C3	0	93.3	10	100	5
1-119-1-Q SCULLERY	C3	0	26.0	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-100-2-L CREW BERTHING

USE: L10 Berthing Space for 10

AREA: 375 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 3,375 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 34,129 BTUs/sq.ft.  
No. of people x 160/compartment area

VENTILATION: 562 cu ft/min EXCHANGE TIME: 6.0 min.  
VENT AREA: 250 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	10	4	0	30
Tbar Failure	5	4	0	50
Dbar Failure	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-100-2-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP PASSAGE	W2	1	180.0	25	40	30
2-100-1-L CREW BERTHING	W2	0	90.0	25	40	30
2-111-2-LW WR WC & SHR	W3	0	90.0	25	60	25
2-111-2-LW WR WC & SHR	W3	1	94.5	25	60	25
2-121-4-L CREW BERTHING	W2	0	121.5	25	40	30
2-49-0-AA SCIENCE STORAGE--UPPER CA	W6	0	153.0	10	100	5
2-95-2-Q FWD IC/GYRO ROOM	W6	0	63.0	10	100	5
3-100-0-E ENGINE ROOM NO.1	F3	0	368.9	25	300	5
3-100-2-F OIL TANK	F3	0	6.8	25	300	5
1-100-0-LP PASSAGE	C3	0	115.1	10	100	5
1-100-2-LP PASSAGE	C3	0	40.0	10	100	5
1-105-0-Q GALLEY	C3	0	219.9	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-100-3-A      GEAR LOCKER

---

USE: AG    Small Storage Spaces -- Gear Lockers

AREA:    22 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      198 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0009

FUEL LOAD: 1,080,000 BTUs/sq.ft.

Fuel load in psf = 15 x height of deck.

VENTILATION:      19 cu ft/min

EXCHANGE TIME:      10.0 min.

VENT AREA:    10 sq.in.

VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	3	0	40
Tbar Failure	I	10	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-100-3-A

GEAR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	49.5	25	40	30
2-100-1-L	CREW BERTHING	W2	0	49.5	25	40	30
2-105-1-TS	STAIRCASE	W5	0	36.0	5	80	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	W6	0	36.0	10	100	5
3-100-0-E	ENGINE ROOM NO.1	F3	0	22.0	25	300	5
1-100-1-TS	STAIRCASE	C3	0	22.0	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-100-4-L CREW BERTHING

USE: L10 Berthing Space for 10

AREA: 402 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 3,621 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 31,805 BTUs/sq.ft.  
No. of people x 160/compartiment area

VENTILATION: 603 cu ft/min EXCHANGE TIME: 6.0 min.  
VENT AREA: 250 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	1	10	4	0	30
Tbar Failure	1	5	4	0	50
Dbar Failure	1	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-100-4-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	180.0	25	40	30
2-125-2-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-125-2-LW	WR WC & SHR	W3	1	90.0	25	60	25
2-130-2-QO	EXO OFFICE	W2	0	72.0	25	40	30
2-65-2-C	FORWARD REPAIR NO.3	W6	0	139.5	10	100	5
3-100-2-F	OIL TANK	F3	0	294.4	25	300	5
3-127-2-F	OIL TANK	F3	0	13.6	25	300	5
1-100-4-LW	WR & SHR	C3	0	16.0	10	100	5
1-100-6-Q	SHIP LIBRARY	C3	0	339.9	10	100	5
1-124-2-LL	CPO MESSROOM & LOUNGE	C3	0	46.5	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-100-5-A      STACK CHAIR LOCKER

---

USE: AG    Small Storage Spaces -- Gear Lockers

AREA:    20 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      180 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0009

FUEL LOAD:      16,000 BTUs/sq.ft.  
Assumed Al or Steel Chairs.

VENTILATION:      18 cu ft/min      EXCHANGE TIME:      10.0 min.  
VENT AREA:    10 sq.in.      VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	50	4	0	40
Tbar Failure	I	40	4	0	30
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-100-5-A

STACK CHAIR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	0	36.0	25	40	30
2-100-7-LL	CREW LOUNGE	W2	0	36.0	25	40	30
2-100-7-LL	CREW LOUNGE	W2	1	45.0	25	40	30
2-65-1-Q	ENGINEERING STOREROOM	W6	0	45.0	10	100	5
3-100-1-F	OIL TANK	F3	0	20.0	25	300	5
1-100-5-LL	CREW MESS	C3	0	20.0	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-100-7-LL CREW LOUNGE

---

USE: LL Lounge areas

AREA: 546 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 4,917 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0006

FUEL LOAD: 24,800 BTUs/sq.ft.  
From Lounge Burnout Rpt. 000278

VENTILATION: 1,229 cu ft/min EXCHANGE TIME: 4.0 min.  
VENT AREA: 2000 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	15	0	30
Tbar Failure	I	15	15	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 10% of time in port and 40% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-100-7-LL CREW LOUNGE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	2	270.0	25	40	30
2-100-5-A	STACK CHAIR LOCKER	W2	0	36.0	25	40	30
2-100-5-A	STACK CHAIR LOCKER	W2	1	45.0	25	40	30
2-134-1-LL	CREW STUDY	W2	0	157.5	25	40	30
2-65-1-Q	ENGINEERING STOREROOM	W6	0	94.5	10	100	5
3-100-1-F	OIL TANK	F3	0	344.4	25	300	5
3-127-1-F	OIL TANK	F3	0	102.1	25	300	5
1-100-5-LL	CREW MESS	C3	0	546.4	10	100	5

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3

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-105-1-TS STAIRCASE

---

USE: TS Staircases

AREA: 38 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 342 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 68 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-105-1-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W5	1	85.5	5	80	5
2-100-1-L	CREW BERTHING	W5	0	36.0	5	80	5
2-100-1-L	CREW BERTHING	W5	0	85.5	5	80	5
2-100-3-A	GEAR LOCKER	W5	0	36.0	5	80	5
3-100-0-E	ENGINE ROOM NO.1	F3	1	38.0	25	300	5
1-100-0-LP	PASSAGE	C3	0	2.0	10	100	5
1-100-1-TS	STAIRCASE	C3	1	36.0	10	100	5
		--					
			3				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-111-1-LW      WR WC & SHR

---

USE: LW    Wash room, water closet and shower areas

AREA:    80 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      726 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:      4,000 BTUs/sq.ft.

VENTILATION:      181 cu ft/min

EXCHANGE TIME:      4.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-111-1-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-100-1-L	CREW BERTHING	W3	1	76.5	25	60	25
2-100-1-L	CREW BERTHING	W3	0	85.5	25	60	25
2-111-2-LW	WR WC & SHR	W3	0	85.5	25	60	25
2-121-1-LW	WR WC & SHR	W3	0	76.5	25	60	25
3-100-0-E	ENGINE ROOM NO.1	F3	0	80.7	25	300	5
1-105-0-Q	GALLEY	C3	0	80.7	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-111-2-LW      WR WC & SHR

---

USE: LW    Wash room, water closet and shower areas

AREA: 105 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 945 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 236 cu ft/min  
VENT AREA: 200 sq.in.

EXCHANGE TIME: 4.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-111-2-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-2-L	CREW BERTHING	W3	0	90.0	25	60	25
2-100-2-L	CREW BERTHING	W3	1	94.5	25	60	25
2-111-1-LW	WR WC & SHR	W3	0	85.5	25	60	25
2-121-2-LW	WR WC & SHR	W3	0	94.5	25	60	25
3-100-0-E	ENGINE ROOM NO.1	F3	0	105.0	25	300	5
1-105-0-Q	GALLEY	C3	0	105.0	10	100	5
		--					
		1					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-121-1-LW      WR WC & SHR

-----

USE: LW    Wash room, water closet and shower areas

AREA: 105 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 945 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 236 cu ft/min

EXCHANGE TIME: 4.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-121-1-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-1-L	CREW BERTHING	W3	0	18.0	25	60	25
2-111-1-LW	WR WC & SHR	W3	0	76.5	25	60	25
2-121-2-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-121-3-L	CREW BERTHING	W3	0	90.0	25	60	25
2-121-3-L	CREW BERTHING	W3	1	94.5	25	60	25
3-100-0-E	ENGINE ROOM NO.1	F3	0	105.0	25	300	5
1-105-0-Q	GALLEY	C3	0	90.0	10	100	5
1-119-1-Q	SCULLERY	C3	0	15.0	10	100	5

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1

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-121-2-LW      WR WC & SHR

-----

USE: LW    Wash room, water closet and shower areas

AREA: 105 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 945 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 236 cu ft/min  
VENT AREA: 200 sq.in.

EXCHANGE TIME: 4.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-121-2-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-111-2-LW	WR WC & SHR	W3	0	94.5	25	60	25
2-121-1-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-121-4-L	CREW BERTHING	W3	0	90.0	25	60	25
2-121-4-L	CREW BERTHING	W3	1	94.5	25	60	25
3-100-0-E	ENGINE ROOM NO.1	F3	0	105.0	25	300	5
1-105-0-Q	GALLEY	C3	0	105.0	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-121-3-L CREW BERTHING

---

USE: L10 Berthing Space for 10

AREA: 319 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,876 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 40,045 BTUs/sq.ft.  
No. of people x 160/compartament area

VENTILATION: 479 cu ft/min EXCHANGE TIME: 6.0 min.  
VENT AREA: 250 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-121-3-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	173.7	25	40	30
2-100-0-LP	PASSAGE	W2	0	198.0	25	40	30
2-100-1-L	CREW BERTHING	W2	0	103.5	25	40	30
2-121-1-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-121-1-LW	WR WC & SHR	W3	1	94.5	25	60	25
2-121-4-L	CREW BERTHING	W2	0	83.7	25	40	30
3-100-0-E	ENGINE ROOM NO.1	F3	0	319.6	25	300	5
1-105-0-Q	GALLEY	C3	0	40.0	10	100	5
1-119-1-Q	SCULLERY	C3	0	141.0	10	100	5
1-132-1-Q	INCINERATOR ROOM	C3	0	131.4	10	100	5
1-138-1-T	DUMB WAITER	C3	0	7.2	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-121-4-L CREW BERTHING

---

USE: L10 Berthing Space for 10

AREA: 358 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 3,223 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 35,730 BTUs/sq.ft.  
No. of people x 160/compartiment area

VENTILATION: 537 cu ft/min EXCHANGE TIME: 6.0 min.  
VENT AREA: 250 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-121-4-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	173.7	25	40	30
2-100-0-LP	PASSAGE	W2	0	216.0	25	40	30
2-100-2-L	CREW BERTHING	W2	0	121.5	25	40	30
2-121-2-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-121-2-LW	WR WC & SHR	W3	1	94.5	25	60	25
2-121-3-L	CREW BERTHING	W2	0	83.7	25	40	30
3-100-0-E	ENGINE ROOM NO.1	F3	0	358.2	25	300	5
1-100-2-LP	PASSAGE	C3	0	38.6	10	100	5
1-105-0-Q	GALLEY	C3	0	319.6	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-125-2-LW      WR WC & SHR

---

USE: LW    Wash room, water closet and shower areas

AREA: 100 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 900 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 225 cu ft/min  
VENT AREA: 200 sq.in.

EXCHANGE TIME: 4.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
			Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-125-2-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W3	0	90.0	25	60	25
2-100-4-L	CREW BERTHING	W3	0	90.0	25	60	25
2-100-4-L	CREW BERTHING	W3	1	90.0	25	60	25
2-130-2-QO	EXO OFFICE	W3	0	90.0	25	60	25
3-100-2-F	OIL TANK	F3	0	70.0	25	300	5
3-127-2-F	OIL TANK	F3	0	30.0	25	300	5
1-100-6-Q	SHIP LIBRARY	C3	0	40.0	10	100	5
1-124-2-LL	CPO MESSROOM & LOUNGE	C3	0	60.0	10	100	5

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1

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-130-2-Q0      EXO OFFICE

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USE: Q0    Offices

AREA: 270 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 2,430 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 405 cu ft/min  
VENT AREA: 175 sq.in.

EXCHANGE TIME: 6.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-130-2-Q0

EXO OFFICE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	135.0	25	40	30
2-100-4-L	CREW BERTHING	W2	0	72.0	25	40	30
2-125-2-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-146-2-Q	ENGINEERING LOG & DAMAGE	W2	0	162.0	25	40	30
3-127-2-F	OIL TANK	F3	0	221.6	25	300	5
1-124-2-LL	CPO MESSROOM & LOUNGE	C3	0	270.0	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-134-1-LL CREW STUDY

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USE: LL Lounge areas

AREA: 244 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,204 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0006

FUEL LOAD: 24,800 BTUs/sq.ft.  
From Lounge Burnout Rpt. 000278

VENTILATION: 551 cu ft/min EXCHANGE TIME: 4.0 min.  
VENT AREA: 200 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	30
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 10% of time in port and 40% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-134-1-LL

CREW STUDY

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	126.0	25	40	30
2-100-7-LL	CREW LOUNGE	W2	0	157.5	25	40	30
2-148-1-Q	ATHLETIC GEAR LOCKER	W2	0	45.0	25	40	30
2-148-3-Q	WEIGHT ROOM & GYM	W2	0	112.5	25	40	30
3-127-1-F	OIL TANK	F3	0	178.1	25	300	5
3-145-1-U	VOID SPACE	F3	0	30.0	25	300	5
1-100-5-LL	CREW MESS	C3	0	244.9	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-145-1-T      MACHINERY HOIST

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USE: T    Elevators, dumb waiters

AREA:    48 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      432 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0001

FUEL LOAD:      12,000 BTUs/sq.ft.  
Accumulated dust and grease and cable insulation

VENTILATION:      216 cu ft/min      EXCHANGE TIME:      2.0 min.  
VENT AREA:      10 sq.in.      VENT HEIGHT:      1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-145-1-T

MACHINERY HOIST

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W5	1	54.0	5	80	5
2-100-0-LP	PASSAGE	W5	0	72.0	5	80	5
2-145-0-TU	UPTAKE 1	W8	0	72.0	80	100	5
2-154-1-A	STOREROOM	W5	0	54.0	5	80	5
3-100-0-E	ENGINE ROOM NO.1	F3	1	48.0	25	300	5
1-145-1-T	MACHINERY HOIST ROOM	C3	1	46.8	10	100	5
1-154-1-A	STOREROOM	C3	0	1.2	10	100	5
		--					
		3					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-145-2-TS STAIRCASE

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USE: TS Staircases

AREA: 66 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 594 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 118 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-145-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W5	0	18.0	5	80	5
2-100-0-LP	PASSAGE	W5	0	54.0	5	80	5
2-100-0-LP	PASSAGE	W5	1	99.0	5	80	5
2-145-0-TU	UPTAKE 1	W8	0	99.0	80	100	5
2-157-2-A	GEAR LOCKER	W5	0	36.0	5	80	5
3-100-0-E	ENGINE ROOM NO. 1	F3	1	66.0	25	300	5
1-145-2-TS	STAIRCASE	C3	1	66.0	10	100	5
		--					
			3				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-146-2-Q      ENGINEERING LOG & DAMAGE CONTROL CENTER

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USE: Q0      Offices

AREA: 293 sq.ft.      DECK HEIGHT: 9.0 ft.      VOLUME: 2,640 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 440 cu ft/min      EXCHANGE TIME: 6.0 min.  
VENT AREA: 175 sq.in.      VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-146-2-Q

ENGINEERING LOG & DAMAGE CONTROL CENTER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	146.7	25	40	30
2-130-2-Q0	EXO OFFICE	W2	0	162.0	25	40	30
2-162-4-Q	MACHINE SHOP	W6	0	162.0	10	100	5
3-127-2-F	OIL TANK	F3	0	15.0	25	300	5
3-145-2-F	OIL TANK	F3	0	229.5	25	300	5
1-124-2-LL	CPO MESSROOM & LOUNGE	C3	0	293.4	10	100	5
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		1					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-148-1-Q      ATHLETIC GEAR LOCKER

-----

USE: AG    Small Storage Spaces -- Gear Lockers

AREA:    20 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      180 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0009

FUEL LOAD:      16,000 BTUs/sq.ft.

VENTILATION:      18 cu ft/min      EXCHANGE TIME:      10.0 min.  
VENT AREA:    10 sq.in.      VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	3	0	40
Tbar Failure	I	20	3	0	30
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-148-1-Q

ATHLETIC GEAR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	0	36.0	25	40	30
2-134-1-LL	CREW STUDY	W2	0	45.0	25	40	30
2-148-3-Q	WEIGHT ROOM & GYM	W2	0	36.0	25	40	30
2-148-3-Q	WEIGHT ROOM & GYM	W2	1	45.0	25	40	30
3-145-1-U	VOID SPACE	F3	0	20.0	25	300	5
1-100-5-LL	CREW MESS	C3	0	20.0	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-148-3-Q      WEIGHT ROOM & GYM

-----

USE: Q    Areas usually unoccupied:    engineering, electronics, galleys

AREA:    216 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:    1,944 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0006

FUEL LOAD:    16,000 BTUs/sq.ft.

VENTILATION:    388 cu ft/min

EXCHANGE TIME:    5.0 min.

VENT AREA:    225 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
-----	-----	-----	-----	-----	-----
Fire Origin	I	30	5	0	20
Tbar Failure	I	20	5	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    20% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-148-3-Q

WEIGHT ROOM & GYM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP PASSAGE	W2	1	83.7	25	40	30
2-134-1-LL CREW STUDY	W2	0	112.5	25	40	30
2-148-1-Q ATHLETIC GEAR LOCKER	W2	0	36.0	25	40	30
2-148-1-Q ATHLETIC GEAR LOCKER	W2	1	45.0	25	40	30
2-162-5-Q SHIP LAUNDRY	W6	0	162.0	10	100	5
3-145-1-U VOID SPACE	F3	0	179.5	25	300	5
1-100-5-LL CREW MESS	C3	0	216.1	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-154-1-A      STOREROOM

-----

USE: AS      Storerooms

AREA:    46 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      421 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0009

FUEL LOAD: 1,440,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION:      42 cu ft/min

EXCHANGE TIME:      10.0 min.

VENT AREA:    10 sq.in.

VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	3	0	30
Tbar Failure	I	20	3	0	20
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-154-1-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	70.2	25	40	30
2-145-0-TU	UPTAKE 1	W8	0	70.2	80	100	5
2-145-1-T	MACHINERY HOIST	W5	0	54.0	5	80	5
2-162-1-TS	STAIRCASE	W6	0	54.0	10	100	5
3-100-0-E	ENGINE ROOM NO. 1	F3	0	46.8	25	300	5
1-154-1-A	STOREROOM	C3	0	46.8	10	100	5
		--					
		1					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-157-2-A GEAR LOCKER

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USE: AG Small Storage Spaces -- Gear Lockers

AREA: 19 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 172 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,080,000 BTUs/sq.ft.  
Fuel load in psf = 15 x height of deck.

VENTILATION: 17 cu ft/min EXCHANGE TIME: 10.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	3	0	40
Tbar Failure	I	10	3	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-157-2-A

GEAR LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W2	1	43.2	25	40	30
2-145-0-TU	UPTAKE 1	W8	0	43.2	80	100	5
2-145-2-TS	STAIRCASE	W5	0	36.0	5	80	5
2-162-2-LP	PASSAGE	W6	0	36.0	10	100	5
3-100-0-E	ENGINE ROOM NO.1	F3	0	19.2	25	300	5
1-145-2-TS	STAIRCASE	C3	0	19.2	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-162-1-TS STAIRCASE

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USE: TS Staircases

AREA: 112 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 1,008 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 201 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-162-1-TS STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W6	0	9.0	10	100	5
2-154-1-A	STOREROOM	W6	0	54.0	10	100	5
2-162-0-TU	UPTAKE 2	W8	0	144.0	80	100	5
2-162-3-LP	PASSAGE	W5	1	144.0	5	80	5
2-178-1-E	BOILER ROOM	W6	0	63.0	10	100	5
3-162-0-E	ENGINE ROOM NO.2	F3	1	112.0	25	300	5
1-162-1-TS	STAIRCASE	C3	1	96.0	10	100	5
1-162-3-LP	PASSAGE	C3	0	16.0	10	100	5
		--					
		3					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-162-2-LP      PASSAGE  
Zero strength barrier adjacent.

-----

USE: LP      Passageways

AREA: 397 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 3,580 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 716 cu ft/min      EXCHANGE TIME: 5.0 min.  
VENT AREA: 1125 sq.in.      VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.
- 1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-162-2-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP PASSAGE	W6	1	72.0	10	100	5
2-157-2-A GEAR LOCKER	W6	0	36.0	10	100	5
2-162-0-TU UPTAKE 2	W8	0	69.3	80	100	5
2-162-3-LP PASSAGE	W0	0	27.9	0	0	100
2-162-4-Q MACHINE SHOP	W2	2	303.3	25	40	30
2-169-2-T MACHINERY HOIST	W5	1	54.0	5	80	5
2-169-2-T MACHINERY HOIST	W5	0	74.7	5	80	5
2-178-2-E BOILER ROOM	W6	0	18.0	10	100	5
2-178-2-E BOILER ROOM	W6	0	216.0	10	100	5
2-178-2-E BOILER ROOM	W6	0	262.8	10	100	5
2-195-2-Q FIREFIGHTING EQPT ROOM	W2	1	248.4	25	40	30
2-210-0-Q GRAVIMETER ROOM	W2	0	63.0	25	40	30
2-210-01-Q COMPUTER/NAV LAB	W2	1	81.0	25	40	30
2-210-2-TS STAIRCASE	W5	0	72.0	5	80	5
2-210-2-TS STAIRCASE	W5	1	117.0	5	80	5
2-223-2-LP PASSAGE	W6	1	36.0	10	100	5
3-162-0-E ENGINE ROOM NO.2	F3	0	397.8	25	300	5
1-162-2-LP PASSAGE	C3	0	259.4	10	100	5
1-178-2-E BOILER ROOM UPPER LEVEL	C3	0	2.4	10	100	5
1-207-2-LP PASSAGE	C3	0	113.6	10	100	5
1-217-2-A C.G. LOCKER	C3	0	22.4	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-162-3-LP      PASSAGE  
Zero strength barrier adjacent.

-----

USE: LP      Passageways

AREA: 335 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 3,020 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 604 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 1375 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI Time	A	M
Fire Origin	1	95	20	0	40
Tbar Failure	1	80	20	0	60
Dbar Failure	1	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.  
1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-162-3-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-100-0-LP	PASSAGE	W6	1	45.0	10	100	5
2-162-1-TS	STAIRCASE	W5	1	144.0	5	80	5
2-162-2-LP	PASSAGE	W0	0	27.9	0	0	100
2-162-5-Q	SHIP LAUNDRY	W2	1	159.3	25	40	30
2-178-1-E	BOILER ROOM	W6	0	9.0	10	100	5
2-178-1-E	BOILER ROOM	W6	1	216.0	10	100	5
2-178-1-E	BOILER ROOM	W6	0	262.8	10	100	5
2-180-1-Q	SELF-SERVICE LAUNDRY	W2	1	144.0	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	W2	1	126.0	25	40	30
2-205-1-Q	ELECTRIC SHOP	W2	1	122.4	25	40	30
2-210-0-Q	GRAVIMETER ROOM	W2	1	63.0	25	40	30
2-210-01-Q	COMPUTER/NAU LAB	W2	0	117.0	25	40	30
2-210-01-Q	COMPUTER/NAU LAB	W2	1	153.0	25	40	30
2-223-1-LP	PASSAGE	W6	1	36.0	10	100	5
3-162-0-E	ENGINE ROOM NO.2	F3	0	335.6	25	300	5
1-162-3-LP	PASSAGE	C3	0	296.8	10	100	5
1-178-1-E	BOILER ROOM UPPER LEVEL	C3	0	2.4	10	100	5
1-213-3-L	Q.M. SHELTER	C3	0	14.0	10	100	5
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				10			

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-162-4-Q MACHINE SHOP

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 606 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 5,459 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0023

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 1,819 cu ft/min

EXCHANGE TIME: 3.0 min.

VENT AREA: 775 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	10	0	20
Tbar Failure	I	5	10	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-162-4-Q

MACHINE SHOP

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-146-2-Q ENGINEERING LOG & DAMAGE	W6	0	162.0	10	100	5
2-162-2-LP PASSAGE	W2	2	303.3	25	40	30
2-195-2-Q FIREFIGHTING EQPT ROOM	W2	0	162.0	25	40	30
3-162-2-U VOID SPACE	F3	0	243.0	25	300	5
3-178-2-F OIL TANK	F3	0	262.5	25	300	5
1-162-4-Q SHIP STORE	C3	0	202.4	10	100	5
1-162-6-A SHIP STORE STOREROOM	C3	0	85.6	10	100	5
1-178-4-Q0 SUPPLY OFFICE	C3	0	141.6	10	100	5
1-178-6-Q0 SUPPLY OFFICER OFFICE	C3	0	87.0	10	100	5
1-187-2-Q0 1ST LT OFFICE	C3	0	90.0	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-162-5-Q SHIP LAUNDRY

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 318 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,867 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0036

FUEL LOAD: 16,000 BTUs/sq.ft.

VENTILATION: 1,433 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 400 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	60	3	0	20
Tbar Failure	I	40	3	0	40
Dbar Failure	I	20	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 35% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-162-5-Q

SHIP LAUNDRY

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-148-3-Q	WEIGHT ROOM & GYM	W6	0	162.0	10	100	5
2-162-3-LP	PASSAGE	W2	1	159.3	25	40	30
2-180-1-Q	SELF-SERVICE LAUNDRY	W2	0	162.0	25	40	30
3-162-1-F	OIL TANK	F3	0	243.0	25	300	5
3-178-1-F	OIL TANK	F3	0	22.5	25	300	5
1-162-5-LW	WARD BATH	C3	0	98.0	10	100	5
1-162-7-L	WARD NO. 1	C3	0	85.6	10	100	5
1-174-1-L	MEDICAL TREATMENT & EXAMI	C3	0	79.0	10	100	5
1-174-3-L	WARD NO. 2	C3	0	56.0	10	100	5
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		1					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-169-2-T      MACHINERY HOIST

-----

USE: T    Elevators, dumb waiters

AREA:    49 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      448 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0001

FUEL LOAD:      12,000 BTUs/sq.ft.

Accumulated dust and grease and cable insulation

VENTILATION:      224 cu ft/min

EXCHANGE TIME:      2.0 min.

VENT AREA:      10 sq.in.

VENT HEIGHT:      1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-169-2-T

MACHINERY HOIST

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-0-TU	UPTAKE 2	W8	0	74.7	80	100	5
2-162-2-LP	PASSAGE	W5	1	54.0	5	80	5
2-162-2-LP	PASSAGE	W5	0	74.7	5	80	5
2-178-2-E	BOILER ROOM	W6	0	54.0	10	100	5
3-162-0-E	ENGINE ROOM NO.2	F3	1	49.8	25	300	5
1-169-2-T	MACHINERY HOIST ROOM	C3	1	49.8	10	100	5
		--					
			3				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-178-1-E BOILER ROOM (SECOND DECK LEVEL)  
Zero strength barrier above.

-----

USE: E Machinery areas which are normally occupied.

AREA: 700 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 6,307 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0452

FUEL LOAD: 8,558 BTUs/sq.ft.  
Paint and miscellaneous (1.2gpm x 6m/compartiment area)

VENTILATION: 3,153 cu ft/min EXCHANGE TIME: 2.0 min.  
VENT AREA: 500 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	0	3 80	10	
Tbar Failure	15	3 20	40	
Dbar Failure	0	* 0	0	

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

2 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-178-1-E

BOILER ROOM (SECOND DECK LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-0-TU	UPTAKE 2	W8	0	144.0	80	100	5
2-162-1-TS	STAIRCASE	W6	0	63.0	10	100	5
2-162-3-LP	PASSAGE	W6	0	9.0	10	100	5
2-162-3-LP	PASSAGE	W6	1	216.0	10	100	5
2-162-3-LP	PASSAGE	W6	0	262.8	10	100	5
2-178-2-E	BOILER ROOM	W6	0	262.8	10	100	5
3-162-0-E	ENGINE ROOM NO.2	F3	0	700.8	25	300	5
1-178-1-E	BOILER ROOM UPPER LEVEL	C0	0	700.8	0	0	100
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-178-2-E BOILER ROOM (SECOND DECK LEVEL)  
Zero strength barrier above.

-----

USE: E Machinery areas which are normally occupied.

AREA: 700 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 6,307 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0452

FUEL LOAD: 8,558 BTUs/sq.ft.  
Paint and miscellaneous (1.2gpm x 6m/compartiment area)

VENTILATION: 3,153 cu ft/min EXCHANGE TIME: 2.0 min.  
VENT AREA: 500 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	3	80	10
Tbar Failure	I	15	3	20	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

2 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.  
1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.  
1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-178-2-E

BOILER ROOM (SECOND DECK LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-0-TU	UPTAKE 2	W8	0	144.0	80	100	5
2-162-2-LP	PASSAGE	W6	0	18.0	10	100	5
2-162-2-LP	PASSAGE	W6	0	216.0	10	100	5
2-162-2-LP	PASSAGE	W6	0	262.8	10	100	5
2-169-2-T	MACHINERY HOIST	W6	0	54.0	10	100	5
2-178-1-E	BOILER ROOM	W6	0	262.8	10	100	5
3-162-0-E	ENGINE ROOM NO.2	F3	0	700.8	25	300	5
1-178-2-E	BOILER ROOM UPPER LEVEL	C0	0	700.8	0	0	100
		--					
		0					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-180-1-Q SELF-SERVICE LAUNDRY

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 288 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,592 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0036

FUEL LOAD: 16,000 BTUs/sq.ft.

VENTILATION: 864 cu ft/min

EXCHANGE TIME: 3.0 min.

VENT AREA: 200 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	60	3	0	20
Tbar Failure	I	40	3	0	40
Dbar Failure	I	20	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 20% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-180-1-Q

SELF-SERVICE LAUNDRY

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-3-LP	PASSAGE	W2	1	144.0	25	40	30
2-162-5-Q	SHIP LAUNDRY	W2	0	162.0	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	W2	0	162.0	25	40	30
3-178-1-F	OIL TANK	F3	0	240.0	25	300	5
1-174-1-L	MEDICAL TREATMENT & EXAMI	C3	0	264.0	10	100	5
1-174-3-L	WARD NO.2	C3	0	24.0	10	100	5
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			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-195-1-A ELECTRICAL STOREROOM

---

USE: AS Storerooms

AREA: 252 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,268 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,440,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 226 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	5	0	30
Tbar Failure	I	20	5	0	20
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 15% of time in port and 15% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-195-1-A

ELECTRICAL STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-162-3-LP	PASSAGE	W2	1	126.0	25	40	30
2-180-1-Q	SELF-SERVICE LAUNDRY	W2	0	162.0	25	40	30
2-205-1-Q	ELECTRIC SHOP	W2	0	162.0	25	40	30
3-178-1-F	OIL TANK	F3	0	60.0	25	300	5
3-199-1-F	OIL TANK	F3	0	150.0	25	300	5
1-174-1-L	MEDICAL TREATMENT & EXAMI	C3	0	63.0	10	100	5
1-199-1-L	MEDICAL STORES	C3	0	110.5	10	100	5
1-199-3-L	X-RAY DARKROOM	C3	0	42.5	10	100	5
1-207-1-A	STOREROOM	C3	0	11.2	10	100	5
1-207-3-A	LIFE JACKET LOCKER	C3	0	10.8	10	100	5
1-207-5-A	BOAT GEAR LOCKER	C3	0	14.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-195-2-Q      FIREFIGHTING EQPT ROOM

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USE: Q    Areas usually unoccupied:    engineering, electronics, galleys

AREA:    489 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:    4,408 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0009

FUEL LOAD:    32,000 BTUs/sq.ft.

VENTILATION:    881 cu ft/min

EXCHANGE TIME:    5.0 min.

VENT AREA:    10 sq.in.

VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	6	0	20
Tbar Failure	I	20	6	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 15% of time in port and 15% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-195-2-Q

FIREFIGHTING EQPT ROOM

Barriers (Adjoining Compt. ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-2-LP	PASSAGE	W2	1	248.4	25	40	30
2-162-4-Q	MACHINE SHOP	W2	0	162.0	25	40	30
2-223-4-Q	ELECTRICAL EQUIPMENT ROOM	W6	0	157.5	10	100	5
3-178-2-F	OIL TANK	F3	0	60.0	25	300	5
3-199-2-F	OIL TANK	F3	0	354.0	25	300	5
1-178-4-Q0	SUPPLY OFFICE	C3	0	24.0	10	100	5
1-187-2-Q0	1ST LT OFFICE	C3	0	29.9	10	100	5
1-198-2-Q0	SHIP OFFICE	C3	0	221.2	10	100	5
1-206-2-Q0	EXO OFFICE	C3	0	116.5	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-205-1-Q      ELECTRIC SHOP

---

USE: Q    Areas usually unoccupied:    engineering, electronics, galleys

AREA:    241 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:    2,172 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0023

FUEL LOAD:    28,000 BTUs/sq.ft.

VENTILATION:    434 cu ft/min

EXCHANGE TIME:    5.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	15	8	0	20
Tbar Failure	I	10	8	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    25% of time in port and    50% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1    Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-205-1-Q

ELECTRIC SHOP

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-3-LP	PASSAGE	W2	1	122.4	25	40	30
2-195-1-A	ELECTRICAL STOREROOM	W2	0	162.0	25	40	30
2-223-3-Q	ELECTRICAL EQUIPMENT	W6	0	157.5	10	100	5
3-199-1-F	OIL TANK	F3	0	204.0	25	300	5
1-207-1-A	STOREROOM	C3	0	44.8	10	100	5
1-207-3-A	LIFE JACKET LOCKER	C3	0	43.2	10	100	5
1-207-5-A	BOAT GEAR LOCKER	C3	0	54.8	10	100	5
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			1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-210-0-Q GRAVIMETER ROOM

---

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 112 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 1,008 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 504 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	10	0	20
Tbar Failure	I	20	10	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 5% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-210-0-Q

GRAVIMETER ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-2-LP	PASSAGE	W2	0	63.0	25	40	30
2-162-3-LP	PASSAGE	W2	1	63.0	25	40	30
2-210-01-Q	COMPUTER/NAU LAB	W2	0	72.0	25	40	30
2-210-01-Q	COMPUTER/NAU LAB	W2	0	72.0	25	40	30
2-210-01-Q	COMPUTER/NAU LAB	W2	0	126.0	25	40	30
3-162-0-E	ENGINE ROOM NO.2	F3	0	112.0	25	300	5
1-162-3-LP	PASSAGE	C3	0	2.8	10	100	5
1-207-2-LP	PASSAGE	C3	0	2.8	10	100	5
1-210-0-M	SMALL ARMS STOW & REPAIR	C3	0	87.4	10	100	5
1-210-1-Q	BARBER SHOP	C3	0	19.0	10	100	5
		--					
			1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-210-01-Q      COMPUTER/NAV LAB

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USE: Q0    Offices

AREA: 408 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 3,672 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 20,000 BTUs/sq.ft.

VENTILATION: 1,836 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	5	0	60
Tbar Failure	I	15	5	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 35% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

2 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-210-01-Q

COMPUTER/NAV LAB

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-2-LP	PASSAGE	W2	1	81.0	25	40	30
2-162-3-LP	PASSAGE	W2	0	117.0	25	40	30
2-162-3-LP	PASSAGE	W2	1	153.0	25	40	30
2-210-0-Q	GRAVIMETER ROOM	W2	0	72.0	25	40	30
2-210-0-Q	GRAVIMETER ROOM	W2	0	72.0	25	40	30
2-210-0-Q	GRAVIMETER ROOM	W2	0	126.0	25	40	30
2-210-2-TS	STAIRCASE	W5	0	117.0	5	80	5
2-223-0-C	ENGINEERING CONTROL CENTE	W6	0	360.0	10	100	5
3-162-0-E	ENGINE ROOM NO.2	F3	0	408.0	25	300	5
1-162-3-LP	PASSAGE	C3	0	89.4	10	100	5
1-207-2-LP	PASSAGE	C3	0	3.6	10	100	5
1-210-0-M	SMALL ARMS STOW & REPAIR	C3	0	70.1	10	100	5
1-210-1-Q	BARBER SHOP	C3	0	88.1	10	100	5
1-210-2-Q	MAIL ROOM	C3	0	64.0	10	100	5
1-210-3-A	GEAR LOCKER	C3	0	9.0	10	100	5
1-213-1-LW	WC & WR	C3	0	28.8	10	100	5
1-213-3-L	Q.M. SHELTER	C3	0	7.0	10	100	5
1-218-2-A	C.G. LOCKER	C3	0	36.8	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-210-2-TS STAIRCASE

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USE: TS Staircases

AREA: 104 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 936 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 187 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-210-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-162-2-LP	PASSAGE	W5	0	72.0	5	80	5
2-162-2-LP	PASSAGE	W5	1	117.0	5	80	5
2-210-01-Q	COMPUTER/NAU LAB	W5	0	117.0	5	80	5
2-223-0-C	ENGINEERING CONTROL CENTE	W6	0	72.0	10	100	5
3-162-0-E	ENGINE ROOM NO.2	F3	1	104.0	25	300	5
1-207-2-LP	PASSAGE	C3	0	65.6	10	100	5
1-213-2-TS	STAIRCASE	C3	1	38.4	10	100	5
		--					
			3				

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-223-0-C      ENGINEERING CONTROL CENTER

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USE: C    Ship and fire control operating areas normally occupied.

AREA: 1661 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 14,957 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 7,478 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 250 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	70	12	90	95
Tbar Failure	I	55	12	0	70
Dbar Failure	I	20	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Always occupied.

DETECTION:

Manual:

Occupied 100% of time in port and 100% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

4 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 - 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-223-0-C

## ENGINEERING CONTROL CENTER

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-210-01-Q COMPUTER/NAU LAB	W6	0	360.0	10	100	5
2-210-2-TS STAIRCASE	W6	0	72.0	10	100	5
2-223-1-LP PASSAGE	W2	2	18.0	25	40	30
2-223-1-LP PASSAGE	W2	0	36.0	25	40	30
2-223-1-LP PASSAGE	W2	0	273.6	25	40	30
2-223-2-LP PASSAGE	W2	0	251.1	25	40	30
2-251-2-A BATTERY ROOM	W2	0	45.0	25	40	30
2-251-2-A BATTERY ROOM	W2	0	63.0	25	40	30
2-256-2-TS STAIRCASE	W5	1	36.0	5	80	5
2-262-1-Q IC/GYRO ROOM	W2	1	40.5	25	40	30
2-262-1-Q IC/GYRO ROOM	W2	0	40.5	25	40	30
2-262-1-Q IC/GYRO ROOM	W2	0	139.5	25	40	30
2-262-2-QF FAN ROOM	W6	0	153.0	10	100	5
3-223-0-E MOTOR GENERATOR ROOM	F3	0	1661.9	25	300	5
1-223-0-C AFT REPAIR NO.3 & DAMAGE	C3	0	608.0	10	100	5
1-223-2-LP PASSAGE	C3	0	120.6	10	100	5
1-223-4-A LIFE JACKET LOCKER	C3	0	40.0	10	100	5
1-233-2-A BOAT GEAR LOCKER	C3	0	24.0	10	100	5
1-239-0-Q DRY LAB	C3	0	488.0	10	100	5
1-239-1-LP PASSAGE	C3	0	38.4	10	100	5
1-239-2-A PHOTO LAB	C3	0	47.6	10	100	5
1-245-1-Q SCIENCE REEFER MACHY. ROO	C3	0	78.4	10	100	5
1-255-0-Q ELECTRONICS LAB	C3	0	88.2	10	100	5
1-255-1-A REEFER	C3	0	67.9	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-223-1-LP      PASSAGE

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USE: LP      Passageways

AREA: 206 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 1,854 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 370 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 750 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-223-1-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-3-LP	PASSAGE	W6	1	36.0	10	100	5
2-223-0-C	ENGINEERING CONTROL CENTE	W2	2	18.0	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	W2	0	36.0	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	W2	0	273.6	25	40	30
2-223-3-Q	ELECTRICAL EQUIPMENT	W2	1	305.1	25	40	30
2-256-1-TS	STAIRCASE	W5	0	36.0	5	80	5
2-256-1-TS	STAIRCASE	W5	1	126.9	5	80	5
2-262-1-Q	IC/GYRO ROOM	W2	0	140.4	25	40	30
2-271-3-LP	PASSAGE	W6	1	36.0	10	100	5
3-223-0-E	MOTOR GENERATOR ROOM	F3	0	206.0	25	300	5
1-245-1-Q	SCIENCE REEFER MACHY. ROO	C3	0	3.2	10	100	5
1-255-1-A	REEFER	C3	0	32.0	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-223-2-LP      PASSAGE

-----

USE: LP      Passageways

AREA: 192 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 1,728 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.

Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 345 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 625 sq.in.

VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-223-2-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-162-2-LP PASSAGE	W6	1	36.0	10	100	5
2-223-0-C ENGINEERING CONTROL CENTE	W2	0	251.1	25	40	30
2-223-4-Q ELECTRICAL EQUIPMENT ROOM	W2	1	432.0	25	40	30
2-251-2-A BATTERY ROOM	W2	0	45.0	25	40	30
2-256-2-TS STAIRCASE	W5	1	135.9	5	80	5
2-271-4-LP PASSAGE	W6	1	36.0	10	100	5
3-223-0-E MOTOR GENERATOR ROOM	F3	0	192.0	25	300	5
1-223-4-A LIFE JACKET LOCKER	C3	0	24.0	10	100	5
1-223-6-L Q.M. SHELTER	C3	0	16.0	10	100	5
1-233-2-A BOAT GEAR LOCKER	C3	0	24.0	10	100	5
1-239-2-A PHOTO LAB	C3	0	64.0	10	100	5
1-255-2-TS STAIRCASE	C3	0	64.0	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-223-3-Q ELECTRICAL EQUIPMENT

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 803 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 7,235 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 28,000 BTUs/sq.ft.

VENTILATION: 1,447 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	15	8	0	20
Tbar Failure	I	10	8	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

2 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-223-3-Q

ELECTRICAL EQUIPMENT

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-205-1-Q	ELECTRIC SHOP	W6	0	157.5	10	100	5
2-223-1-LP	PASSAGE	W2	1	305.1	25	40	30
2-256-1-TS	STAIRCASE	W5	0	126.9	5	80	5
2-271-5-L	CREW BERTHING	W6	0	144.0	10	100	5
3-223-1-F	OIL TANK	F3	0	358.7	25	300	5
3-247-1-F	OIL TANK	F3	0	329.2	25	300	5
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			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-223-4-Q ELECTRICAL EQUIPMENT ROOM NO.2

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 803 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 7,235 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 28,000 BTUs/sq.ft.

VENTILATION: 1,447 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	15	8	0	20
Tbar Failure	I	10	8	0	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

2 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-223-4-Q

ELECTRICAL EQUIPMENT ROOM NO.2

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-195-2-Q	FIREFIGHTING EQPT ROOM	W6	0	157.5	10	100	5
2-223-2-LP	PASSAGE	W2	1	432.0	25	40	30
2-271-6-L	CREW BERTHING	W6	0	144.0	10	100	5
3-223-2-F	OIL TANK	F3	0	358.7	25	300	5
3-247-2-F	OIL TANK	F3	0	329.2	25	300	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-251-2-A BATTERY ROOM

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 35 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 315 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 40,000 BTUs/sq.ft.

VENTILATION: 157 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	1	0	20
Tbar Failure	I	10	1	0	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-251-2-A

BATTERY ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-223-0-C ENGINEERING CONTROL CENTE	W2	0	45.0	25	40	30
2-223-0-C ENGINEERING CONTROL CENTE	W2	0	63.0	25	40	30
2-223-2-LP PASSAGE	W2	0	45.0	25	40	30
2-256-2-TS STAIRCASE	W5	1	63.0	5	80	5
3-223-0-E MOTOR GENERATOR ROOM	F3	0	35.0	25	300	5
1-223-2-LP PASSAGE	C3	0	15.0	10	100	5
1-239-2-A PHOTO LAB	C3	0	16.4	10	100	5
1-255-2-TS STAIRCASE	C3	0	3.6	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-256-1-TS STAIRCASE

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USE: TS Staircases

AREA: 56 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 507 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 101 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		

---

Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-256-1-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-223-1-LP	PASSAGE	W5	0	36.0	5	80	5
2-223-1-LP	PASSAGE	W5	1	126.9	5	80	5
2-223-3-Q	ELECTRICAL EQUIPMENT	W5	0	126.9	5	80	5
2-271-5-L	CREW BERTHING	W6	0	36.0	10	100	5
3-223-0-E	MOTOR GENERATOR ROOM	F3	1	56.4	25	300	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-256-2-TS STAIRCASE

USE: TS Staircases

AREA: 105 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 951 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 190 cu ft/min  
VENT AREA: 10 sq.in.

EXCHANGE TIME: 5.0 min.  
VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	100	999	0	30
Tbar Failure	100	999	0	40
Dbar Failure	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-256-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-223-0-C ENGINEERING CONTROL CENTE	W5	1	36.0	5	80	5
2-223-2-LP PASSAGE	W5	1	135.9	5	80	5
2-251-2-A BATTERY ROOM	W5	1	63.0	5	80	5
2-262-2-QF FAN ROOM	W6	1	99.9	10	100	5
2-271-4-LP PASSAGE	W6	0	63.0	10	100	5
3-223-0-E MOTOR GENERATOR ROOM	F3	1	105.7	25	300	5
1-223-2-LP PASSAGE	C3	0	45.3	10	100	5
1-255-2-TS STAIRCASE	C3	1	60.4	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-262-1-Q IC/GYRO ROOM

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USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 242 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,180 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 1,090 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	11	0	20
Tbar Failure	I	20	11	0	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 5% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-262-1-Q

IC/GYRO ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-223-0-C	ENGINEERING CONTROL CENTE	W2	1	40.5	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	W2	0	40.5	25	40	30
2-223-0-C	ENGINEERING CONTROL CENTE	W2	0	139.5	25	40	30
2-223-1-LP	PASSAGE	W2	0	140.4	25	40	30
2-262-2-QF	FAN ROOM	W6	0	99.9	10	100	5
2-271-1-L	CREW BERTHING	W6	0	144.0	10	100	5
2-271-3-LP	PASSAGE	W6	0	36.0	10	100	5
3-223-0-E	MOTOR GENERATOR ROOM	F3	0	242.3	25	300	5
1-255-0-Q	ELECTRONICS LAB	C3	0	22.2	10	100	5
1-255-1-A	REEFER	C3	0	220.1	10	100	5
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			1				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-262-2-QF FAN ROOM

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USE: QF Fan Rooms

AREA: 188 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 1,698 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0004

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 849 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
			Time		
Fire Origin		100	999	0	20
Tbar Failure		100	999	0	50
Dbar Failure		30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 0% of time in port and 0% of time at sea.

Automatic:

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-262-2-QF FAN ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-223-0-C	ENGINEERING CONTROL CENTE	W6	0	153.0	10	100	5
2-256-2-TS	STAIRCASE	W6	1	99.9	10	100	5
2-262-1-Q	IC/GYRO ROOM	W6	0	99.9	10	100	5
2-271-2-L	CREW BERTHING	W6	0	144.0	10	100	5
2-271-4-LP	PASSAGE	W6	0	9.0	10	100	5
3-223-0-E	MOTOR GENERATOR ROOM	F3	0	188.7	25	300	5
1-223-2-LP	PASSAGE	C3	0	11.1	10	100	5
1-255-0-Q	ELECTRONICS LAB	C3	0	177.6	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-271-1-L CREW BERTHING

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USE: L6 Berthing Space for 6

AREA: 245 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,210 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 31,270 BTUs/sq.ft.  
No. of people x 160/compartament area

VENTILATION: 442 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 275 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-271-1-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-262-1-Q	IC/GYRO ROOM	W6	0	144.0	10	100	5
2-271-2-L	CREW BERTHING	W2	0	96.3	25	40	30
2-271-3-LP	PASSAGE	W2	1	180.0	25	40	30
2-281-1-LW	WR WC & SHR	W3	1	72.0	25	60	25
2-281-1-LW	WR WC & SHR	W3	0	83.7	25	60	25
2-291-3-L	CREW BERTHING	W2	0	72.0	25	40	30
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	245.6	25	300	5
1-271-0-Q	WET LAB	C3	0	245.6	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-271-2-L CREW BERTHING

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USE: L10 Berthing Space for 10

AREA: 245 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,210 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 52,117 BTUs/sq.ft.

No. of people x 160/compartment area

VENTILATION: 442 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 250 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-271-2-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-262-2-QF	FAN ROOM	W6	0	144.0	10	100	5
2-271-1-L	CREW BERTHING	W2	0	96.3	25	40	30
2-271-4-LP	PASSAGE	W2	1	180.0	25	40	30
2-281-2-LW	WR WC & SHR	W3	1	72.0	25	60	25
2-281-2-LW	WR WC & SHR	W3	0	83.7	25	60	25
2-291-4-L	CREW BERTHING	W2	0	72.0	25	40	30
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	245.6	25	300	5
1-271-0-Q	WET LAB	C3	0	213.6	10	100	5
1-287-2-Q	WET LAB NO.2	C3	0	32.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-271-3-LP      PASSAGE  
Zero strength barrier adjacent.

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USE: LP      Passageways

AREA: 267 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 2,404 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 480 cu ft/min      EXCHANGE TIME: 5.0 min.  
VENT AREA: 875 sq.in.      VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-271-3-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-223-1-LP PASSAGE	W6	1	36.0	10	100	5
2-262-1-Q IC/GYRO ROOM	W6	0	36.0	10	100	5
2-271-1-L CREW BERTHING	W2	1	180.0	25	40	30
2-271-4-LP PASSAGE	W0	0	41.4	0	0	100
2-271-5-L CREW BERTHING	W2	1	75.6	25	40	30
2-279-1-TS STAIRCASE	W5	0	36.0	5	80	5
2-279-1-TS STAIRCASE	W5	1	81.0	5	80	5
2-284-1-LW WR WC & SHR	W3	0	63.0	25	60	25
2-291-3-L CREW BERTHING	W2	1	138.6	25	40	30
2-291-3-L CREW BERTHING	W2	0	144.0	25	40	30
2-295-1-LW WR WC & SHR	W3	0	45.0	25	60	25
2-295-3-L CREW BERTHING	W2	1	95.4	25	40	30
2-311-0-Q WINCH ROOM	W6	1	180.0	10	100	5
3-271-0-E AUXILIARY MACHINERY ROOM	F3	0	267.2	25	300	5
1-271-0-Q WET LAB	C3	0	112.8	10	100	5
1-295-1-Q VESTIBULE	C3	0	137.6	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-271-4-LP      PASSAGE  
Zero strength barrier adjacent.

-----

USE: LP      Passageways

AREA: 264 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 2,383 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 3,200 BTUs/sq.ft.  
Paint, cable insulation laminate on blkhds-no dropped ceiling

VENTILATION: 476 cu ft/min      EXCHANGE TIME: 5.0 min.  
VENT AREA: 1125 sq.in.      VENT HEIGHT: 12 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	95	20	0	40
Tbar Failure	I	80	20	0	60
Dbar Failure	I	40	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-271-4-LP

PASSAGE

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-223-2-LP PASSAGE	W6	1	36.0	10	100	5
2-256-2-TS STAIRCASE	W6	0	63.0	10	100	5
2-262-2-QF FAN ROOM	W6	0	9.0	10	100	5
2-271-2-L CREW BERTHING	W2	1	180.0	25	40	30
2-271-3-LP PASSAGE	W0	0	41.4	0	0	100
2-271-6-L CREW BERTHING	W2	1	35.1	25	40	30
2-275-2-TS STAIRCASE	W5	0	72.0	5	80	5
2-275-2-TS STAIRCASE	W5	1	117.0	5	80	5
2-284-2-LW WR WC & SHR	W3	0	67.5	25	60	25
2-291-4-L CREW BERTHING	W2	1	138.6	25	40	30
2-291-4-L CREW BERTHING	W2	0	144.0	25	40	30
2-295-2-L CREW BERTHING	W2	1	95.4	25	40	30
2-295-4-LW WR WC & SHR	W3	0	45.0	25	60	25
2-311-0-Q WINCH ROOM	W6	1	108.0	10	100	5
2-311-2-T ELEVATOR	W6	0	72.0	10	100	5
3-271-0-E AUXILIARY MACHINERY ROOM	F3	0	264.8	25	300	5
1-223-2-LP PASSAGE	C3	0	160.0	10	100	5
1-271-2-Q RECOMPRESSION AREA & DIVE	C3	0	31.2	10	100	5
1-287-2-Q WET LAB NO.2	C3	0	73.6	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-271-5-L CREW BERTHING

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USE: L10 Berthing Space for 10

AREA: 381 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 3,435 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 33,538 BTUs/sq.ft.  
No. of people x 160/compartiment area

VENTILATION: 687 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 250 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-271-5-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-223-3-Q	ELECTRICAL EQUIPMENT	W6	0	144.0	10	100	5
2-256-1-TS	STAIRCASE	W6	0	36.0	10	100	5
2-271-3-LP	PASSAGE	W2	1	75.6	25	40	30
2-279-1-TS	STAIRCASE	W5	0	45.0	5	80	5
2-284-1-LW	WR WC & SHR	W3	1	72.0	25	60	25
2-284-1-LW	WR WC & SHR	W3	0	99.0	25	60	25
2-295-3-L	CREW BERTHING	W2	0	94.5	25	40	30
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	312.9	25	300	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-271-6-L CREW BERTHING

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USE: L10 Berthing Space for 10

AREA: 310 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,794 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 41,693 BTUs/sq.ft.  
No. of people x 160/compt. area

VENTILATION: 558 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 250 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-271-6-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-223-4-Q ELECTRICAL EQUIPMENT ROOM	W6	0	144.0	10	100	5
2-271-4-LP PASSAGE	W2	1	35.1	25	40	30
2-275-2-TS STAIRCASE	W5	0	61.2	5	80	5
2-284-2-LW WR WC & SHR	W3	0	40.5	25	60	25
2-284-2-LW WR WC & SHR	W3	1	123.3	25	60	25
2-295-2-L CREW BERTHING	W2	0	90.0	25	40	30
3-271-0-E AUXILIARY MACHINERY ROOM	F3	0	241.7	25	300	5
1-271-2-Q RECOMPRESSION AREA & DIVE	C3	0	157.9	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-275-2-TS STAIRCASE

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USE: TS Staircases

AREA: 104 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 936 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 187 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-275-2-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-4-LP	PASSAGE	W5	0	72.0	5	80	5
2-271-4-LP	PASSAGE	W5	1	117.0	5	80	5
2-271-6-L	CREW BERTHING	W5	0	61.2	5	80	5
2-284-2-LW	WR WC & SHR	W5	0	55.8	5	80	5
2-284-2-LW	WR WC & SHR	W5	0	72.0	5	80	5
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	1	104.0	25	300	5
1-271-2-Q	RECOMPRESSION AREA & DIVE	C3	1	66.0	10	100	5
1-278-2-TS	STAIRCASE	C3	1	38.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-279-1-TS STAIRCASE

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USE: TS Staircases

AREA: 36 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 324 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD: 800 BTUs/sq.ft.  
Paint-no carpet or laminate

VENTILATION: 64 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 10 sq.in. VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	90	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 30% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-279-1-TS

STAIRCASE

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-3-LP	PASSAGE	W5	0	36.0	5	80	5
2-271-3-LP	PASSAGE	W5	1	81.0	5	80	5
2-271-5-L	CREW BERTHING	W5	0	45.0	5	80	5
2-284-1-LW	WR WC & SHR	W5	0	36.0	5	80	5
2-284-1-LW	WR WC & SHR	W5	0	36.0	5	80	5
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	1	36.0	25	300	5
1-271-0-Q	WET LAB	C3	0	18.0	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-281-1-LW      WR WC & SHR

---

USE: LW    Wash room, water closet and shower areas

AREA:    74 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:            669 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:            4,000 BTUs/sq.ft.

VENTILATION:            167 cu ft/min

EXCHANGE TIME:            4.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-281-1-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-1-L	CREW BERTHING	W3	1	72.0	25	60	25
2-271-1-L	CREW BERTHING	W3	0	83.7	25	60	25
2-281-2-LW	WR WC & SHR	W3	0	83.7	25	60	25
2-291-1-LW	WR WC & SHR	W3	0	72.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	74.4	25	300	5
1-271-0-Q	WET LAB	C3	0	74.4	10	100	5
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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-281-2-LW      WR WC & SHR

---

USE: LW    Wash room, water closet and shower areas

AREA:    74 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:            669 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:            4,000 BTUs/sq.ft.

VENTILATION:            167 cu ft/min

EXCHANGE TIME:            4.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-281-2-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	\$heat rel
2-271-2-L	CREW BERTHING	W3	1	72.0	25	60	25
2-271-2-L	CREW BERTHING	W3	0	83.7	25	60	25
2-281-1-LW	WR WC & SHR	W3	0	83.7	25	60	25
2-291-2-LW	WR WC & SHR	W3	0	72.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	74.4	25	300	5
1-271-0-Q	WET LAB	C3	0	42.4	10	100	5
1-287-2-Q	WET LAB NO. 2	C3	0	32.0	10	100	5
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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-284-1-LW      WR WC & SHR

-----

USE: LW    Wash room, water closet and shower areas

AREA: 116 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 1,044 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 261 cu ft/min  
VENT AREA: 200 sq.in.

EXCHANGE TIME: 4.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-284-1-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-3-LP	PASSAGE	W3	0	63.0	25	60	25
2-271-5-L	CREW BERTHING	W3	1	72.0	25	60	25
2-271-5-L	CREW BERTHING	W3	0	99.0	25	60	25
2-279-1-TS	STAIRCASE	W5	0	36.0	5	80	5
2-279-1-TS	STAIRCASE	W5	0	36.0	5	80	5
2-295-1-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-295-3-L	CREW BERTHING	W3	0	18.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	116.0	25	300	5
1-271-0-Q	WET LAB	C3	0	13.2	10	100	5
		--					
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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-284-2-LW      WR WC & SHR  
-----

USE: LW    Wash room, water closet and shower areas

AREA: 121 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 1,094 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0002

FUEL LOAD: 4,000 BTUs/sq.ft.

VENTILATION: 273 cu ft/min  
VENT AREA: 200 sq.in.

EXCHANGE TIME: 4.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-284-2-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-4-LP	PASSAGE	W3	0	67.5	25	60	25
2-271-6-L	CREW BERTHING	W3	0	40.5	25	60	25
2-271-6-L	CREW BERTHING	W3	1	123.3	25	60	25
2-275-2-TS	STAIRCASE	W5	0	55.8	5	80	5
2-275-2-TS	STAIRCASE	W5	0	72.0	5	80	5
2-295-2-L	CREW BERTHING	W3	0	22.5	25	60	25
2-295-4-LW	WR WC & SHR	W3	0	90.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	121.6	25	300	5
1-271-2-Q	RECOMPRESSION AREA & DIVE	C3	0	119.6	10	100	5
1-278-2-TS	STAIRCASE	C3	0	2.0	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-291-1-LW      WR WC & SHR

-----

USE: LW    Wash room, water closet and shower areas

AREA:    40 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:        360 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:        4,000 BTUs/sq.ft.

VENTILATION:        90 cu ft/min

EXCHANGE TIME:        4.0 min.

VENT AREA:    150 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-291-1-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-281-1-LW	WR WC & SHR	W3	0	72.0	25	60	25
2-291-2-LW	WR WC & SHR	W3	0	45.0	25	60	25
2-291-3-L	CREW BERTHING	W3	0	45.0	25	60	25
2-291-3-L	CREW BERTHING	W3	1	72.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	40.0	25	300	5
1-271-0-Q	WET LAB	C3	0	32.0	10	100	5
1-295-1-Q	VESTIBULE	C3	0	8.0	10	100	5
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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-291-2-LW      WR WC & SHR

---

USE: LW    Wash room, water closet and shower areas

AREA:    40 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:        360 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:        4,000 BTUs/sq.ft.

VENTILATION:        90 cu ft/min

EXCHANGE TIME:        4.0 min.

VENT AREA:    150 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-291-2-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-281-2-LW	WR WC & SHR	W3	0	72.0	25	60	25
2-291-1-LW	WR WC & SHR	W3	0	45.0	25	60	25
2-291-4-L	CREW BERTHING	W3	0	45.0	25	60	25
2-291-4-L	CREW BERTHING	W3	1	72.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	40.0	25	300	5
1-287-2-Q	WET LAB NO.2	C3	0	40.0	10	100	5
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		1					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-291-3-L CREW BERTHING

---

USE: L4 Berthing Space for 4

AREA: 206 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 1,857 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 24,806 BTUs/sq.ft.

No. of people x 160/compartment area

VENTILATION: 371 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 225 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
		Time		
Fire Origin	10	3	0	30
Tbar Failure	5	3	0	40
Dbar Failure	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 15% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-291-3-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-1-L CREW BERTHING	W2	0	72.0	25	40	30
2-271-3-LP PASSAGE	W2	1	138.6	25	40	30
2-271-3-LP PASSAGE	W2	0	144.0	25	40	30
2-291-1-LW WR WC & SHR	W3	0	45.0	25	60	25
2-291-1-LW WR WC & SHR	W3	1	72.0	25	60	25
2-291-4-L CREW BERTHING	W2	0	93.6	25	40	30
3-271-0-E AUXILIARY MACHINERY ROOM	F3	0	206.4	25	300	5
1-271-0-Q WET LAB	C3	0	32.0	10	100	5
1-295-1-Q VESTIBULE	C3	0	174.4	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-291-4-L CREW BERTHING

---

USE: L6 Berthing Space for 6

AREA: 206 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 1,857 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 37,209 BTUs/sq.ft.

No. of people x 160/compartment area

VENTILATION: 371 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 275 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-291-4-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-2-L	CREW BERTHING	W2	0	72.0	25	40	30
2-271-4-LP	PASSAGE	W2	1	138.6	25	40	30
2-271-4-LP	PASSAGE	W2	0	144.0	25	40	30
2-291-2-LW	WR WC & SHR	W3	0	45.0	25	60	25
2-291-2-LW	WR WC & SHR	W3	1	72.0	25	60	25
2-291-3-L	CREW BERTHING	W2	0	93.6	25	40	30
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	206.4	25	300	5
1-287-2-Q	WET LAB NO.2	C3	0	206.4	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-295-1-LW      WR WC & SHR

---

USE: LW    Wash room, water closet and shower areas

AREA:    50 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      450 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:      4,000 BTUs/sq.ft.

VENTILATION:      112 cu ft/min

EXCHANGE TIME:      4.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-295-1-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-271-3-LP	PASSAGE	W3	0	45.0	25	60	25
2-284-1-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-295-3-L	CREW BERTHING	W3	0	45.0	25	60	25
2-295-3-L	CREW BERTHING	W3	1	90.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	50.0	25	300	5
1-295-1-Q	VESTIBULE	C3	0	10.0	10	100	5
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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-295-2-L CREW BERTHING

---

USE: L6 Berthing Space for 6

AREA: 289 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,603 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 26,549 BTUs/sq.ft.  
No. of people x 160/compartament area

VENTILATION: 520 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 275 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-295-2-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-271-4-LP PASSAGE	W2	1	95.4	25	40	30
2-271-6-L CREW BERTHING	W2	0	90.0	25	40	30
2-284-2-LW WR WC & SHR	W3	0	22.5	25	60	25
2-295-4-LW WR WC & SHR	W3	0	45.0	25	60	25
2-295-4-LW WR WC & SHR	W3	1	90.0	25	60	25
2-311-0-Q WINCH ROOM	W6	0	189.0	10	100	5
3-271-0-E AUXILIARY MACHINERY ROOM	F3	0	241.4	25	300	5
1-271-2-Q RECOMPRESSION AREA & DIVE	C3	0	100.9	10	100	5
1-302-2-LW WTR WC & SHR	C3	0	35.0	10	100	5
1-307-2-A ARCTIC GEAR LOCKER--SCIEN	C3	0	53.7	10	100	5

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2

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-295-3-L CREW BERTHING

-----

USE: L6 Berthing Space for 6

AREA: 289 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 2,603 cu.ft.

UNACCEPTABLE LOSS: Code 7 (5 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0008

FUEL LOAD: 26,549 BTUs/sq.ft.  
No. of people x 160/compartment area

VENTILATION: 520 cu ft/min EXCHANGE TIME: 5.0 min.  
VENT AREA: 275 sq.in. VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	4	0	30
Tbar Failure	I	5	4	0	50
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 20% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-295-3-L

CREW BERTHING

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-271-3-LP PASSAGE	W2	1	95.4	25	40	30
2-271-5-L CREW BERTHING	W2	0	94.5	25	40	30
2-284-1-LW WR WC & SHR	W3	0	18.0	25	60	25
2-295-1-LW WR WC & SHR	W3	0	45.0	25	60	25
2-295-1-LW WR WC & SHR	W3	1	90.0	25	60	25
2-311-0-Q WINCH ROOM	W6	0	189.0	10	100	5
3-271-0-E AUXILIARY MACHINERY ROOM	F3	0	241.4	25	300	5
1-295-1-Q VESTIBULE	C3	0	21.2	10	100	5

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2

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-295-4-LW      WR WC & SHR

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USE: LW    Wash room, water closet and shower areas

AREA:    50 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      450 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0002

FUEL LOAD:      4,000 BTUs/sq.ft.

VENTILATION:      112 cu ft/min

EXCHANGE TIME:      4.0 min.

VENT AREA:    175 sq.in.

VENT HEIGHT:    90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	35	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    15% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2    1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-295-4-LW

WR WC & SHR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-271-4-LP	PASSAGE	W3	0	45.0	25	60	25
2-284-2-LW	WR WC & SHR	W3	0	90.0	25	60	25
2-295-2-L	CREW BERTHING	W3	0	45.0	25	60	25
2-295-2-L	CREW BERTHING	W3	1	90.0	25	60	25
3-271-0-E	AUXILIARY MACHINERY ROOM	F3	0	50.0	25	300	5
1-271-2-Q	RECOMPRESSION AREA & DIVE	C3	0	50.0	10	100	5
		--					
		1					

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-311-0-Q WINCH ROOM

---

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 2584 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 23,264 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0033

FUEL LOAD: 12,000 BTUs/sq.ft.

VENTILATION: 11,632 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	80	10
Tbar Failure	I	100	999	30	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 10% of time at sea.

Automatic:

Ionization smoke detection system (I)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

3 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

5 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-311-0-Q

WINCH ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel	
2-271-3-LP	PASSAGE	W6	1	180.0	10	100	5
2-271-4-LP	PASSAGE	W6	1	108.0	10	100	5
2-295-2-L	CREW BERTHING	W6	0	189.0	10	100	5
2-295-3-L	CREW BERTHING	W6	0	189.0	10	100	5
2-311-2-T	ELEVATOR	W5	0	72.0	5	80	5
2-311-2-T	ELEVATOR	W5	0	75.6	5	80	5
2-311-2-T	ELEVATOR	W5	2	75.6	5	80	5
2-343-0-A	HAUSER STORES & SCIENCE C	W2	0	65.7	25	40	30
2-343-0-A	HAUSER STORES & SCIENCE C	W2	1	301.5	25	40	30
2-343-2-A	BOSN'S LOCKER	W2	0	112.5	25	40	30
2-343-3-C	AFT REPAIR NO.2	W2	0	13.5	25	40	30
2-343-3-C	AFT REPAIR NO.2	W2	0	13.5	25	40	30
2-343-3-C	AFT REPAIR NO.2	W2	0	179.1	25	40	30
2-343-3-C	AFT REPAIR NO.2	W2	0	179.1	25	40	30
3-311-0-AA	SCIENCE STORAGE--AFT CARG	F3	1	2055.2	25	300	5
3-331-1-Q	VENT TRUNK	F3	0	192.0	25	300	5
1-223-2-LP	PASSAGE	C3	0	32.0	10	100	5
1-287-2-Q	WET LAB NO.2	C3	0	64.0	10	100	5
1-295-1-Q	VESTIBULE	C3	0	176.0	10	100	5
1-307-2-A	ARCTIC GEAR LOCKER--SCIEN	C3	0	166.5	10	100	5
1-319-0-LP	PASSAGE	C3	0	344.4	10	100	5
1-326-0-Q	VENT TRUNK	C3	0	128.8	10	100	5
1-328-1-Q	PORTABLE UAN	C3	0	116.8	10	100	5
1-328-2-Q	PORTABLE UAN	C3	0	116.8	10	100	5
1-328-4-Q	PORTABLE UAN	C3	0	135.7	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-311-2-T      ELEVATOR

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USE: T    Elevators, dumb waiters

AREA:    67 sq.ft.    DECK HEIGHT:    9.0 ft.    VOLUME:      604 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS:    1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING:    0.0001

FUEL LOAD:      4,000 BTUs/sq.ft.  
Accumulated dust and grease and cable insulation

VENTILATION:      302 cu ft/min      EXCHANGE TIME:      2.0 min.  
VENT AREA:      10 sq.in.      VENT HEIGHT:      1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-311-2-T

ELEVATOR

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-271-4-LP	PASSAGE	W6	0	72.0	10	100	5
2-311-0-Q	WINCH ROOM	W5	0	72.0	5	80	5
2-311-0-Q	WINCH ROOM	W5	0	75.6	5	80	5
2-311-0-Q	WINCH ROOM	W5	2	75.6	5	80	5
3-311-2-T	ELEVATOR TRUNK	F3	0	67.2	25	300	5
1-287-2-Q	WET LAB NO. 2	C3	0	3.2	10	100	5
1-311-2-T	ELEVATOR	C3	0	60.8	10	100	5
1-319-0-LP	PASSAGE	C3	0	3.2	10	100	5
		--					
			2				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-343-0-A      HAWSER STORES & SCIENCE CARGO

---

USE: AS      Storerooms

AREA: 852 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 7,674 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,280,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 767 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 2000 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	8	0	30
Tbar Failure	I	20	8	0	20
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-343-0-A

HAUSER STORES & SCIENCE CARGO

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-311-0-Q WINCH ROOM	W2	0	65.7	25	40	30
2-311-0-Q WINCH ROOM	W2	1	301.5	25	40	30
2-343-2-A BOSN'S LOCKER	W2	1	225.0	25	40	30
2-343-3-C AFT REPAIR NO.2	W2	1	233.1	25	40	30
2-361-1-E STEERING GEAR ROOM	W6	0	161.1	10	100	5
2-361-2-E STEERING GEAR ROOM	W6	1	193.5	10	100	5
1-326-0-Q VENT TRUNK	C3	0	16.0	10	100	5
1-328-1-Q PORTABLE VAN	C3	0	43.2	10	100	5
1-328-2-Q PORTABLE VAN	C3	0	43.2	10	100	5
1-328-4-Q PORTABLE VAN	C3	0	21.0	10	100	5
1-344-0-K HAZARDOUS METALS ROOM	C3	0	48.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-343-2-A      BOSN'S LOCKER

-----

USE: AG    Small Storage Spaces -- Gear Lockers

AREA: 302 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 2,722 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 120,000 BTUs/sq.ft.

VENTILATION: 544 cu ft/min

EXCHANGE TIME: 5.0 min.

VENT AREA: 10 sq.in.

VENT HEIGHT: 1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	10	8	0	40
Tbar Failure	I	5	8	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-343-2-A

BOSN'S LOCKER

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-311-0-Q	WINCH ROOM	W2	0	112.5	25	40	30
2-343-0-A	HAWSER STORES & SCIENCE C	W2	1	225.0	25	40	30
2-361-2-E	STEERING GEAR ROOM	W6	0	116.1	10	100	5
1-328-4-Q	PORTABLE VAN	C3	0	3.3	10	100	5
		--					
		1					

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-343-3-C AFT REPAIR NO.2

USE: C Ship and fire control operating areas normally occupied.

AREA: 446 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 4,021 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0012

FUEL LOAD: 32,000 BTUs/sq.ft.

VENTILATION: 804 cu ft/min  
VENT AREA: 175 sq.in.

EXCHANGE TIME: 5.0 min.  
VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	20	6	0	80
Tbar Failure	I	15	6	0	70
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-343-3-C

AFT REPAIR NO.2

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-311-0-Q	WINCH ROOM	W2	0	13.5	25	40	30
2-311-0-Q	WINCH ROOM	W2	0	13.5	25	40	30
2-311-0-Q	WINCH ROOM	W2	0	179.1	25	40	30
2-311-0-Q	WINCH ROOM	W2	0	179.1	25	40	30
2-343-0-A	HAWSER STORES & SCIENCE C	W2	1	233.1	25	40	30
2-361-1-E	STEERING GEAR ROOM	W6	0	148.5	10	100	5
		--					
				1			

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-361-1-E STEERING GEAR ROOM

---

USE: E Machinery areas which are normally occupied.

AREA: 704 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 6,343 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0073

FUEL LOAD: 42,816 BTUs/sq.ft.  
2 hydraulic pumps at 37 gpm for 6 minutes.

VENTILATION: 2,114 cu ft/min EXCHANGE TIME: 3.0 min.  
VENT AREA: 500 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
	I	Time		
Fire Origin	1	30	7 60	10
Tbar Failure	1	20	7 20	40
Dbar Failure	1	10	* 0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

2 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-361-1-E

STEERING GEAR ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-343-0-A	HAWSER STORES & SCIENCE C	W6	0	161.1	10	100	5
2-343-3-C	AFT REPAIR NO.2	W6	0	148.5	10	100	5
2-361-2-E	STEERING GEAR ROOM	W6	0	243.9	10	100	5
2-388-1-A	STOREROOM	W6	0	198.9	10	100	5
		--	0				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-361-2-E STEERING GEAR ROOM

---

USE: E Machinery areas which are normally occupied.

AREA: 702 sq.ft. DECK HEIGHT: 9.0 ft. VOLUME: 6,325 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0073

FUEL LOAD: 42,816 BTUs/sq.ft.

2 hydraulic pumps at 37 gpm for 6 minutes.

VENTILATION: 2,108 cu ft/min

EXCHANGE TIME: 3.0 min.

VENT AREA: 500 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	7	60	10
Tbar Failure	I	20	7	20	40
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture

No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

2 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-361-2-E

STEERING GEAR ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-343-0-A	HAWSER STORES & SCIENCE C	W6	1	193.5	10	100	5
2-343-2-A	BOSN'S LOCKER	W6	0	116.1	10	100	5
2-361-1-E	STEERING GEAR ROOM	W6	0	243.9	10	100	5
2-388-2-A	STOREROOM	W6	1	198.9	10	100	5
		--					
			2				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-388-1-A      STOREROOM

-----

USE: AS      Storerooms

AREA: 288 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 2,592 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,280,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 259 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
-----	-----	-----	-----	-----	-----
Fire Origin	I	30	5	0	30
Tbar Failure	I	20	5	0	20
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-388-1-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
2-361-1-E	STEERING GEAR ROOM	W6	0	198.9	10	100	5
2-388-2-A	STOREROOM	W2	0	210.6	25	40	30
			--				
			0				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 2-388-2-A      STOREROOM

-----

USE: AS      Storerooms

AREA: 228 sq.ft.    DECK HEIGHT: 9.0 ft.    VOLUME: 2,052 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,280,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 205 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 175 sq.in.

VENT HEIGHT: 90 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	5	0	30
Tbar Failure	I	20	5	0	20
Dbar Failure	I	10	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 2-388-2-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
2-361-2-E	STEERING GEAR ROOM	W6	1	198.9	10	100	5
2-388-1-A	STOREROOM	W2	0	210.6	25	40	30
			--				
			1				

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-4-0-A                      STOREROOM

---

USE: AS    Storerooms

AREA:    87 sq.ft.    DECK HEIGHT: 10.0 ft.    VOLUME:        875 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,600,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION:        87 cu ft/min                      EXCHANGE TIME:        10.0 min.  
VENT AREA:    10 sq.in.                      VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	4	80	30
Tbar Failure	I	20	4	60	20
Dbar Failure	I	10	*	20	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Feb 13 1988

Compartment: 3-4-0-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
3-22-0-A	STOREROOM	W2	0	78.0	25	40	30
3-22-0-A	STOREROOM	W2	0	78.0	25	40	30
2-22-0-A	STOREROOM	C3	0	1.3	10	100	5
2-4-0-A	STOREROOM	C3	1	86.2	10	100	5
			--				
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-22-0-A      STOREROOM

-----

USE: AS    Storerooms

AREA: 740 sq.ft.    DECK HEIGHT: 10.0 ft.    VOLUME: 7,406 cu.ft.

UNACCEPTABLE LOSS: Code 4 (2 compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.3300 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,600,000 BTUs/sq.ft.

Boxes of flammable stores--Fuel load in psf = 20 x height of deck

VENTILATION: 740 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 20 sq.in.

VENT HEIGHT: 2 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	6	70	40
Tbar Failure	I	20	6	50	60
Dbar Failure	I	10	*	10	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 5% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Seawater sprinkler system - remotely activated

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-22-0-A

STOREROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dhar	%heat rel
3-4-0-A	STOREROOM	W2	0	78.0	25	40	30
3-4-0-A	STOREROOM	W2	0	78.0	25	40	30
3-46-1-U	VOID SPACE	W6	0	163.0	10	100	5
3-46-2-U	VOID SPACE	W6	0	163.0	10	100	5
3-49-0-AA	CARGO HOLD	W6	0	67.0	10	100	5
3-49-0-AA	CARGO HOLD	W6	0	67.0	10	100	5
4-31-0-W	TRIM TANK	F3	0	196.5	25	300	5
2-22-0-A	STOREROOM	C3	1	738.6	10	100	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	C3	0	1.0	10	100	5
		--					
		1					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-49-0-AA CARGO HOLD

USE: AA Cargo Holds

AREA: 1548 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 15,480 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 2,000,000 BTUs/sq.ft.

Loaded cardboard boxes--Fuel load in psf = 25 x height of deck.

VENTILATION: 1,548 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 100 sq.in.

VENT HEIGHT: 20 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	11	70	40
Tbar Failure	I	20	11	50	60
Dbar Failure	I	10	*	10	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Seawater sprinkler system - remotely activated

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-49-0-AA

CARGO HOLD

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
3-100-0-E	ENGINE ROOM NO.1	W6	0	460.0	10	100	5
3-22-0-A	STOREROOM	W6	0	67.0	10	100	5
3-22-0-A	STOREROOM	W6	0	67.0	10	100	5
3-46-1-U	VOID SPACE	W6	0	566.0	10	100	5
3-46-2-U	VOID SPACE	W6	0	566.0	10	100	5
4-49-0-E	HYDRAULIC PUMP ROOM	F3	0	1535.0	25	300	5
4-49-1-F	OIL TANK	F3	0	2.8	25	300	5
4-49-2-F	OIL TANK	F3	0	2.8	25	300	5
4-76-1-F	OIL TANK	F3	0	3.7	25	300	5
4-76-2-F	OIL TANK	F3	0	3.7	25	300	5
2-49-0-AA	SCIENCE STORAGE--UPPER CA	C3	1	1509.5	10	100	5
2-95-2-Q	FWD IC/GYRO ROOM	C3	0	38.5	10	100	5
		--					
			1				

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-100-0-E ENGINE ROOM NO.1 (THIRD DECK LEVEL)  
Zero strength barrier below.

-----

USE: E Machinery areas which are normally occupied.

AREA: 3120 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 31,201 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0474

FUEL LOAD: 16,353 BTUs/sq.ft.

Cable, paint, etc., (40gpm x 6m/compartiment area)

VENTILATION: 31,201 cu ft/min

EXCHANGE TIME: 1.0 min.

VENT AREA: 2100 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	6	85	10
Tbar Failure	I	5	6	20	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture

No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

4 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-100-0-E

ENGINE ROOM NO.1 (THIRD DECK LEVEL)

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
3-100-1-F OIL TANK	W6	0	271.0	10	100	5
3-100-2-F OIL TANK	W6	0	271.0	10	100	5
3-127-1-F OIL TANK	W6	0	191.0	10	100	5
3-127-2-F OIL TANK	W6	0	191.0	10	100	5
3-145-1-U VOID SPACE	W6	0	153.0	10	100	5
3-145-2-F OIL TANK	W6	0	153.0	10	100	5
3-162-0-E ENGINE ROOM NO.2	W6	0	560.0	10	100	5
3-49-0-AA CARGO HOLD	W6	0	460.0	10	100	5
4-100-0-E ENGINE ROOM NO.1	F0	0	3120.1	0	0	100
2-100-0-LP PASSAGE	C3	0	662.8	10	100	5
2-100-1-L CREW BERTHING	C3	0	269.3	10	100	5
2-100-2-L CREW BERTHING	C3	0	368.9	10	100	5
2-100-3-A GEAR LOCKER	C3	0	22.0	10	100	5
2-105-1-TS STAIRCASE	C3	1	38.0	10	100	5
2-111-1-LW WR WC & SHR	C3	0	80.7	10	100	5
2-111-2-LW WR WC & SHR	C3	0	105.0	10	100	5
2-121-1-LW WR WC & SHR	C3	0	105.0	10	100	5
2-121-2-LW WR WC & SHR	C3	0	105.0	10	100	5
2-121-3-L CREW BERTHING	C3	0	319.6	10	100	5
2-121-4-L CREW BERTHING	C3	0	358.2	10	100	5
2-145-0-TU UPTAKE 1	C3	0	512.0	10	100	5
2-145-1-T MACHINERY HOIST	C3	1	48.0	10	100	5
2-145-2-TS STAIRCASE	C3	1	66.0	10	100	5
2-154-1-A STOREROOM	C3	0	46.8	10	100	5
2-157-2-A GEAR LOCKER	C3	0	19.2	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-162-0-E ENGINE ROOM NO.2 (THIRD DECK LEVEL)  
Zero strength barrier below.

USE: E Machinery areas which are normally occupied.

AREA: 3432 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 34,328 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0474

FUEL LOAD: 15,606 BTUs/sq.ft.

Cable, paint, etc., (40gpm x 6m/compartment area)

VENTILATION: 34,328 cu ft/min

EXCHANGE TIME: 1.0 min.

VENT AREA: 2100 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	6	85	10
Tbar Failure	I	5	6	20	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

4 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-162-0-E

ENGINE ROOM NO.2 (THIRD DECK LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
3-100-0-E	ENGINE ROOM NO.1	W6	0	560.0	10	100	5
3-162-1-F	OIL TANK	W6	0	162.0	10	100	5
3-162-2-U	VOID SPACE	W6	0	162.0	10	100	5
3-178-1-F	OIL TANK	W6	0	215.0	10	100	5
3-178-2-F	OIL TANK	W6	0	215.0	10	100	5
3-199-1-F	OIL TANK	W6	0	236.0	10	100	5
3-199-2-F	OIL TANK	W6	0	236.0	10	100	5
3-223-0-E	MOTOR GENERATOR ROOM	W6	0	560.0	10	100	5
4-162-0-E	ENGINE ROOM NO.2	F0	0	3432.8	0	0	100
2-162-0-TU	UPTAKE 2	C3	0	512.0	10	100	5
2-162-1-TS	STAIRCASE	C3	1	112.0	10	100	5
2-162-2-LP	PASSAGE	C3	0	397.8	10	100	5
2-162-3-LP	PASSAGE	C3	0	335.6	10	100	5
2-169-2-T	MACHINERY HOIST	C3	1	49.8	10	100	5
2-178-1-E	BOILER ROOM	C3	0	700.8	10	100	5
2-178-2-E	BOILER ROOM	C3	0	700.8	10	100	5
2-210-0-Q	GRAVIMETER ROOM	C3	0	112.0	10	100	5
2-210-01-Q	COMPUTER/NAV LAB	C3	0	408.0	10	100	5
2-210-2-TS	STAIRCASE	C3	1	104.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-223-0-E MOTOR GENERATOR ROOM

USE: E Machinery areas which are normally occupied.

AREA: 2688 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 26,880 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0031

FUEL LOAD: 18,428 BTUs/sq.ft.

Cables, paint, etc, (10gpm x 6m/compartament area)

VENTILATION: 8,960 cu ft/min

EXCHANGE TIME: 3.0 min.

VENT AREA: 500 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
			Time		
Fire Origin	1	0	5	80	10
Tbar Failure	1	5	5	15	40
Dbar Failure	1	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release})/100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

- 1 Hand portable dry chemical fire extinguisher (PKP)
- 6 Hand portable Halon fire extinguisher (1301)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-223-0-E

MOTOR GENERATOR ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	%heat rel
3-162-0-E ENGINE ROOM NO.2	W6	0	560.0	10	100	5
3-223-1-F OIL TANK	W6	0	244.0	10	100	5
3-223-2-F OIL TANK	W6	0	244.0	10	100	5
3-247-1-F OIL TANK	W6	0	236.0	10	100	5
3-247-2-F OIL TANK	W6	0	236.0	10	100	5
3-271-0-E AUXILIARY MACHINERY ROOM	W6	0	560.0	10	100	5
4-223-0-E MOTOR ROOM	F3	2	2606.9	25	300	5
4-262-0-W GREY/BLK WTR HOLDING TANK	F3	0	81.1	25	300	5
2-223-0-C ENGINEERING CONTROL CENTE	C3	0	1661.9	10	100	5
2-223-1-LP PASSAGE	C3	0	206.0	10	100	5
2-223-2-LP PASSAGE	C3	0	192.0	10	100	5
2-251-2-A BATTERY ROOM	C3	0	35.0	10	100	5
2-256-1-TS STAIRCASE	C3	1	56.4	10	100	5
2-256-2-TS STAIRCASE	C3	1	105.7	10	100	5
2-262-1-Q IC/GYRO ROOM	C3	0	242.3	10	100	5
2-262-2-QF FAN ROOM	C3	0	188.7	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-271-0-E AUXILIARY MACHINERY ROOM

USE: E Machinery areas which are normally occupied.

AREA: 3179 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 31,798 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0033

FUEL LOAD: 17,026 BTUs/sq.ft.

Cables, paint, etc., (5gpm x 6m/compartment area)

VENTILATION: 15,899 cu ft/min

EXCHANGE TIME: 2.0 min.

VENT AREA: 500 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	5	85	10
Tbar Failure	I	5	5	20	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture

No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

4 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-271-0-E

AUXILIARY MACHINERY ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel	
3-223-0-E	MOTOR GENERATOR ROOM	W6	0	560.0	10	100	5
3-247-1-F	OIL TANK	W6	0	135.0	10	100	5
3-247-2-F	OIL TANK	W6	0	135.0	10	100	5
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	0	300.0	10	100	5
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	0	380.0	10	100	5
3-311-2-T	ELEVATOR TRUNK	W6	0	80.0	10	100	5
4-271-0-E	PUMP ROOM	F3	1	1615.9	25	300	5
4-271-1-F	LUBE OIL	F3	0	180.0	25	300	5
4-271-2-F	LUBE OIL	F3	0	180.0	25	300	5
4-271-3-J	JP-5 STORAGE	F3	0	295.4	25	300	5
4-271-4-J	JP-5 STORAGE	F3	0	295.4	25	300	5
4-299-1-J	JP-5 SERVICE	F3	0	43.7	25	300	5
4-299-2-J	JP-5 SERVICE	F3	0	43.7	25	300	5
4-303-1-J	JP-5 STORAGE	F3	0	81.9	25	300	5
4-303-2-J	JP-5 STORAGE	F3	0	81.9	25	300	5
2-271-1-L	CREW BERTHING	C3	0	245.6	10	100	5
2-271-2-L	CREW BERTHING	C3	0	245.6	10	100	5
2-271-3-LP	PASSAGE	C3	0	267.2	10	100	5
2-271-4-LP	PASSAGE	C3	0	264.8	10	100	5
2-271-5-L	CREW BERTHING	C3	0	312.9	10	100	5
2-271-6-L	CREW BERTHING	C3	0	241.7	10	100	5
2-275-2-TS	STAIRCASE	C3	1	104.0	10	100	5
2-279-1-TS	STAIRCASE	C3	1	36.0	10	100	5
2-281-1-LW	WR WC & SHR	C3	0	74.4	10	100	5
2-281-2-LW	WR WC & SHR	C3	0	74.4	10	100	5
2-284-1-LW	WR WC & SHR	C3	0	116.0	10	100	5
2-284-2-LW	WR WC & SHR	C3	0	121.6	10	100	5
2-291-1-LW	WR WC & SHR	C3	0	40.0	10	100	5
2-291-2-LW	WR WC & SHR	C3	0	40.0	10	100	5
2-291-3-L	CREW BERTHING	C3	0	206.4	10	100	5
2-291-4-L	CREW BERTHING	C3	0	206.4	10	100	5
2-295-1-LW	WR WC & SHR	C3	0	50.0	10	100	5
2-295-2-L	CREW BERTHING	C3	0	241.4	10	100	5
2-295-3-L	CREW BERTHING	C3	0	241.4	10	100	5
2-295-4-LW	WR WC & SHR	C3	0	50.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-311-2-T      ELEVATOR TRUNK

-----

USE: T    Elevators, dumb waiters

AREA:    67 sq.ft.    DECK HEIGHT: 10.0 ft.    VOLUME:        672 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 1.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0001

FUEL LOAD:        4,000 BTUs/sq.ft.  
Accumulated dust and grease and cable insulation

VENTILATION:        336 cu ft/min      EXCHANGE TIME:        2.0 min.  
VENT AREA:    10 sq.in.      VENT HEIGHT:    1 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	100	999	0	30
Tbar Failure	I	100	999	0	40
Dbar Failure	I	30	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied    5% of time in port and    5% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-311-2-T

ELEVATOR TRUNK

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
3-271-0-E	AUXILIARY MACHINERY ROOM	W6	0	80.0	10	100	5
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	0	80.0	10	100	5
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	2	84.0	10	100	5
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	0	84.0	10	100	5
4-311-0-W	BILGE TANK	F3	0	67.2	25	300	5
2-311-2-T	ELEVATOR	C3	0	67.2	10	100	5
		--					
			2				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-311-0-AA SCIENCE STORAGE--AFT CARGO HOLD

USE: AA Cargo Holds

AREA: 2058 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 20,583 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0009

FUEL LOAD: 1,600,000 BTUs/sq.ft.

Loaded cardboard boxes--Fuel load in psf = 25 x height of deck.

VENTILATION: 2,058 cu ft/min

EXCHANGE TIME: 10.0 min.

VENT AREA: 100 sq.in.

VENT HEIGHT: 20 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	30	12	70	40
Tbar Failure	I	20	12	50	60
Dbar Failure	I	10	*	10	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 5% of time in port and 10% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

FIRST AID FIRE PROTECTION:

1 Hand portable monoammonium phosphate fire extinguisher

1 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Seawater sprinkler system - remotely activated

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-311-0-AA

SCIENCE STORAGE--AFT CARGO HOLD

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
3-271-0-E	AUXILIARY MACHINERY ROOM	W6	0	300.0	10	100	5
3-271-0-E	AUXILIARY MACHINERY ROOM	W6	0	380.0	10	100	5
3-311-2-T	ELEVATOR TRUNK	W6	0	80.0	10	100	5
3-311-2-T	ELEVATOR TRUNK	W6	2	84.0	10	100	5
3-311-2-T	ELEVATOR TRUNK	W6	0	84.0	10	100	5
3-331-1-Q	VENT TRUNK	W6	0	120.0	10	100	5
3-331-1-Q	VENT TRUNK	W6	0	120.0	10	100	5
3-331-1-Q	VENT TRUNK	W6	0	160.0	10	100	5
4-311-0-W	BILGE TANK	F3	0	1242.0	25	300	5
2-311-0-Q	WINCH ROOM	C3	1	2055.2	10	100	5

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3

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 3-331-1-Q VENT TRUNK

---

USE: Q Areas usually unoccupied: engineering, electronics, galleys

AREA: 192 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 1,920 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0000

FUEL LOAD: 0 BTUs/sq.ft.

VENTILATION: 0 cu ft/min

EXCHANGE TIME: 0.0 min.

VENT AREA: sq.in.

VENT HEIGHT: 0 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
			Time		
Fire Origin		0		0	20
Tbar Failure		0		0	40
Dbar Failure		0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

DETECTION:

Manual:

Occupied 25% of time in port and 50% of time at sea.

Automatic:

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

2 1 1/2" Seawater hand line with "all purpose nozzle" 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 3-331-1-Q

VENT TRUNK

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	0	120.0	10	100	5
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	0	120.0	10	100	5
3-311-0-AA	SCIENCE STORAGE--AFT CARG	W6	0	160.0	10	100	5
4-311-0-W	BILGE TANK	F3	0	171.2	25	300	5
2-311-0-Q	WINCH ROOM	C3	0	192.0	10	100	5
		--					
			0				

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 4-49-0-E      HYDRAULIC PUMP ROOM

-----

USE: E    Machinery areas which are normally occupied.

AREA: 1535 sq.ft.    DECK HEIGHT: 10.0 ft.    VOLUME: 15,350 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0020

FUEL LOAD: 18,126 BTUs/sq.ft.  
Cables, paint, etc. (5gpm x 6m/compartiment area)

VENTILATION: 2,558 cu ft/min      EXCHANGE TIME: 6.0 min.  
VENT AREA: 500 sq.in.      VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	4	0	5
Tbar Failure	I	5	4	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.  
1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.  
1 1 1/2" AFFF (3%) hand line with SFL variable nozzle 100 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 4-49-0-E

HYDRAULIC PUMP ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
4-100-0-E	ENGINE ROOM NO.1	W6	0	460.0	10	100	5
4-31-0-W	TRIM TANK	W6	0	67.0	10	100	5
4-31-0-W	TRIM TANK	W6	0	67.0	10	100	5
4-49-1-F	OIL TANK	W6	0	240.0	10	100	5
4-49-2-F	OIL TANK	W6	0	240.0	10	100	5
4-76-1-F	OIL TANK	W6	0	326.0	10	100	5
4-76-2-F	OIL TANK	W6	0	326.0	10	100	5
5-49-0-E	BOW THRUSTER MACHINERY RO	F3	0	467.6	25	300	5
5-76-0-E	BOW THRUSTER MACHINERY RO	F3	0	696.0	25	300	5
5-76-1-F	OIL TANK	F3	0	161.6	25	300	5
5-76-2-F	OIL TANK	F3	0	161.6	25	300	5
3-49-0-AA	CARGO HOLD	C3	0	1535.0	10	100	5
		--					
		0					

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 4-100-0-E ENGINE ROOM NO.1 (FIRST PLATFORM LEVEL)  
Zero strength barriers above and below.

USE: E Machinery areas which are normally occupied.

AREA: 3126 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 31,263 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0474

FUEL LOAD: 16,352 BTUs/sq.ft.

Cables, paint, etc., (40gpm x 6m/compartiment area)

VENTILATION: 31,263 cu ft/min

EXCHANGE TIME: 1.0 min.

VENT AREA: 2100 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	6	85	10
Tbar Failure	I	5	6	20	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture

No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

2 Hand portable carbon dioxide fire extinguisher

4 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 4-100-0-E

ENGINE ROOM NO.1 (FIRST PLATFORM LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
4-100-1-F	OIL TANK	W6	0	615.0	10	100	5
4-100-2-F	OIL TANK	W6	0	615.0	10	100	5
4-162-0-E	ENGINE ROOM NO.2	W6	0	560.0	10	100	5
4-49-0-E	HYDRAULIC PUMP ROOM	W6	0	460.0	10	100	5
5-100-0-E	ENGINE ROOM NO.1	F0	0	2390.6	0	0	100
5-100-1-F	OIL TANK	F3	0	367.8	25	300	5
5-100-2-F	OIL TANK	F3	0	367.8	25	300	5
3-100-0-E	ENGINE ROOM NO.1	C0	0	3120.1	0	0	100
3-100-1-F	OIL TANK	C3	0	2.7	10	100	5
3-100-2-F	OIL TANK	C3	0	2.7	10	100	5
		--					
		0					

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 4-162-0-E ENGINE ROOM NO.2 (FIRST PLATFORM LEVEL)  
Zero strength barriers above and below.

USE: E Machinery areas which are normally occupied.

AREA: 3432 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 34,328 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0474

FUEL LOAD: 15,606 BTUs/sq.ft.  
Cables, paint, etc., (40gpm x 6m/compartment area)

VENTILATION: 34,328 cu ft/min EXCHANGE TIME: 1.0 min.  
VENT AREA: 2100 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		

Fire Origin	I	0	6	85	10
Tbar Failure	I	15	6	20	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)  
Photo electric smoke detection system (P)  
Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

- 2 Hand portable carbon dioxide fire extinguisher
- 4 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

- 1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

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BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 4-162-0-E

ENGINE ROOM NO.2 (FIRST PLATFORM LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
4-100-0-E	ENGINE ROOM NO.1	W6	0	560.0	10	100	5
4-162-1-F	OIL TANK	W6	0	613.0	10	100	5
4-162-2-F	OIL TANK	W6	0	613.0	10	100	5
4-223-0-E	MOTOR ROOM	W6	0	560.0	10	100	5
5-162-0-E	ENGINE ROOM NO.2	F0	0	2573.3	0	0	100
5-162-1-F	OIL TANK	F3	0	429.1	25	300	5
5-162-2-F	OIL TANK	F3	0	429.1	25	300	5
3-162-0-E	ENGINE ROOM NO.2	C0	0	3432.8	0	0	100
		--					
		0					

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 4-223-0-E      MOTOR ROOM (FIRST PLATFORM LEVEL)  
Zero strength barrier below.

-----

USE: E    Machinery areas which are normally occupied.

AREA: 2606 sq.ft.    DECK HEIGHT: 10.0 ft.    VOLUME: 26,069 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0031

FUEL LOAD: 18,428 BTUs/sq.ft.  
Cables, paint, etc, (10gpm x 6m/compartiment area)

VENTILATION: 4,344 cu ft/min      EXCHANGE TIME: 6.0 min.  
VENT AREA: 1000 sq.in.      VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:	I	I	FRI	A	M
	I		Time		
Fire Origin	1	0	6	80	10
Tbar Failure	1	5	6	15	40
Dbar Failure	1	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)  
Photo electric smoke detection system (P)  
Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

4 Hand portable carbon dioxide fire extinguisher

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.  
2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 4-223-0-E

MOTOR ROOM (FIRST PLATFORM LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq. ft.	Tbar	Dbar	Heat rel
4-162-0-E	ENGINE ROOM NO.2	W6	0	560.0	10	100	5
4-223-1-F	OIL TANK	W6	0	480.0	10	100	5
4-223-2-F	OIL TANK	W6	0	480.0	10	100	5
4-262-0-W	GREY/BLK WTR HOLDING TANK	W6	0	90.0	10	100	5
4-262-0-W	GREY/BLK WTR HOLDING TANK	W6	0	90.0	10	100	5
4-262-0-W	GREY/BLK WTR HOLDING TANK	W6	0	90.0	10	100	5
4-271-0-E	PUMP ROOM	W6	0	190.0	10	100	5
4-271-0-E	PUMP ROOM	W6	0	190.0	10	100	5
4-271-1-F	LUBE OIL	W6	0	45.0	10	100	5
4-271-2-F	LUBE OIL	W6	0	45.0	10	100	5
5-162-0-E	ENGINE ROOM NO.2	F3	0	2.5	25	300	5
5-223-0-E	MOTOR ROOM	F0	0	1932.4	0	0	100
5-223-1-F	OIL TANK	F3	0	336.0	25	300	5
5-223-2-F	OIL TANK	F3	0	336.0	25	300	5
3-223-0-E	MOTOR GENERATOR ROOM	C3	2	2606.9	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 4-271-0-E PUMP ROOM

-----

USE: E Machinery areas which are normally occupied.

AREA: 1615 sq.ft. DECK HEIGHT: 10.0 ft. VOLUME: 16,159 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)

THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0020

FUEL LOAD: 18,019 BTUs/sq.ft.

Cables, paint, etc (5gpm x 6m/compartment area)

VENTILATION: 2,693 cu ft/min

EXCHANGE TIME: 6.0 min.

VENT AREA: 500 sq.in.

VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	3	85	10
Tbar Failure	I	5	3	20	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture

No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

3 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

1 Halon 1301 total flooding system - remotely actuated

1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.

2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 4-271-0-E

PUMP ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	Heat rel
4-223-0-E	MOTOR ROOM	W6	0	190.0	10	100	5
4-223-0-E	MOTOR ROOM	W6	0	190.0	10	100	5
4-271-1-F	LUBE OIL	W6	0	90.0	10	100	5
4-271-1-F	LUBE OIL	W6	0	200.0	10	100	5
4-271-2-F	LUBE OIL	W6	0	90.0	10	100	5
4-271-2-F	LUBE OIL	W6	0	200.0	10	100	5
4-271-3-J	JP-5 STORAGE	W6	0	288.0	10	100	5
4-271-4-J	JP-5 STORAGE	W6	0	288.0	10	100	5
4-299-1-J	JP-5 SERVICE	W6	0	41.0	10	100	5
4-299-2-J	JP-5 SERVICE	W6	0	41.0	10	100	5
4-303-1-J	JP-5 STORAGE	W6	0	77.0	10	100	5
4-303-2-J	JP-5 STORAGE	W6	0	77.0	10	100	5
4-311-0-W	BILGE TANK	W6	0	90.0	10	100	5
4-311-0-W	BILGE TANK	W6	0	125.0	10	100	5
4-311-0-W	BILGE TANK	W6	0	215.0	10	100	5
5-271-0-F	OIL TANK	F3	0	1150.6	25	300	5
3-271-0-E	AUXILIARY MACHINERY ROOM	C3	1	1615.9	10	100	5

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 5-49-0-E      BOW THRUSTER MACHINERY ROOM  
-----

USE: E    Machinery areas which are normally occupied.

AREA: 513 sq.ft.    DECK HEIGHT: 8.0 ft.    VOLUME: 4,109 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0033

FUEL LOAD: 22,353 BTUs/sq.ft.  
Cables, paint, etc. (5gpm x 6m/compartament area)

VENTILATION: 1,369 cu ft/min      EXCHANGE TIME: 3.0 min.  
VENT AREA: 500 sq.in.      VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	6	0	5
Tbar Failure	I	5	6	0	30
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 5-49-0-E

BOW THRUSTER MACHINERY ROOM

Barriers (Adjoining Compts ID and Name)	Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
5-45-0-U VOID SPACE	W6	0	22.4	10	100	5
5-45-0-U VOID SPACE	W6	0	22.4	10	100	5
5-76-0-E BOW THRUSTER MACHINERY RO	W6	1	71.2	10	100	5
5-76-0-E BOW THRUSTER MACHINERY RO	W6	1	71.2	10	100	5
5-76-1-F OIL TANK	W6	0	76.8	10	100	5
5-76-2-F OIL TANK	W6	0	76.8	10	100	5
4-49-0-E HYDRAULIC PUMP ROOM	C3	0	467.6	10	100	5
4-49-1-F OIL TANK	C3	0	22.0	10	100	5
4-49-2-F OIL TANK	C3	0	22.0	10	100	5

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Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 5-76-0-E BOW THRUSTER MACHINERY ROOM

USE: E Machinery areas which are normally occupied.

AREA: 696 sq.ft. DECK HEIGHT: 8.0 ft. VOLUME: 5,568 cu.ft.

UNACCEPTABLE LOSS: Code 8 (All compartments of one type lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.1000 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0033

FUEL LOAD: 20,689 BTUs/sq.ft.  
Cables, paint, ect. (5gpm x 6m/compartiment area

VENTILATION: 1,856 cu ft/min EXCHANGE TIME: 3.0 min.  
VENT AREA: 500 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	FRI	A	M
	I	Time		
Fire Origin	0	6	0	5
Tbar Failure	5	6	0	30
Dbar Failure	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UU or IR) (F)

FIRST AID FIRE PROTECTION:

1 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 5-76-0-E

BOW THRUSTER MACHINERY ROOM

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
5-100-0-E	ENGINE ROOM NO.1	W6	0	288.0	10	100	5
5-49-0-E	BOW THRUSTER MACHINERY RO	W6	1	71.2	10	100	5
5-49-0-E	BOW THRUSTER MACHINERY RO	W6	1	71.2	10	100	5
5-76-1-F	OIL TANK	W6	0	237.6	10	100	5
5-76-2-F	OIL TANK	W6	0	237.6	10	100	5
4-49-0-E	HYDRAULIC PUMP ROOM	C3	0	696.0	10	100	5

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COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 5-100-0-E ENGINE ROOM NO.1 (TANK TOP LEVEL)  
Zero strength barrier above.

-----

USE: E Machinery areas which are normally occupied.

AREA: 2391 sq.ft. DECK HEIGHT: 8.0 ft. VOLUME: 19,135 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0474

FUEL LOAD: 18,916 BTUs/sq.ft.  
Cable, paint, etc., (40gpm x 6m/compartment area)

VENTILATION: 19,135 cu ft/min EXCHANGE TIME: 1.0 min.  
VENT AREA: 2100 sq.in. VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		
Fire Origin	I	0	6	85	10
Tbar Failure	I	5	6	20	40
Dbar Failure	I	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

- 2 Hand portable carbon dioxide fire extinguisher
- 4 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

- 1 Halon 1301 total flooding system - remotely actuated
- 1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 5-100-0-E

ENGINE ROOM NO.1 (TANK TOP LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
5-100-1-F	OIL TANK	W6	0	491.2	10	100	5
5-100-2-F	OIL TANK	W6	0	491.2	10	100	5
5-162-0-E	ENGINE ROOM NO.2	W6	0	336.0	10	100	5
5-76-0-E	BOW THRUSTER MACHINERY RO	W6	0	288.0	10	100	5
4-100-0-E	ENGINE ROOM NO.1	C0	0	2390.6	0	0	100
		--					
		0					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 5-162-0-E      ENGINE ROOM NO.2 (TANK TOP LEVEL)  
Zero strength barrier above.

-----

USE: E    Machinery areas which are normally occupied.

AREA: 2575 sq.ft.    DECK HEIGHT: 8.0 ft.    VOLUME: 20,607 cu.ft.

UNACCEPTABLE LOSS: Code 3 (Full compartment lost to fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0474

FUEL LOAD: 18,137 BTUs/sq.ft.  
Cables, paint, etc., (40gpm x 6m/compartament area)

VENTILATION: 20,607 cu ft/min      EXCHANGE TIME: 1.0 min.  
VENT AREA: 2100 sq.in.      VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:	I	FRI	A	M
		Time		
-----	-----	-----	-----	-----
Fire Origin	0	6	85	10
Tbar Failure	5	6	20	40
Dbar Failure	5	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)  
Photo electric smoke detection system (P)  
Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

- 2 Hand portable carbon dioxide fire extinguisher
- 4 Hand portable dry chemical fire extinguisher (PKP)

AUTOMATED FIRE PROTECTION SYSTEMS:

- 1 Halon 1301 total flooding system - remotely actuated
- 1 AFFF (3%) sprinkler system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.

Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 5-162-0-E

ENGINE ROOM NO.2 (TANK TOP LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
5-100-0-E	ENGINE ROOM NO.1	W6	0	336.0	10	100	5
5-162-1-F	OIL TANK	W6	0	490.4	10	100	5
5-162-2-F	OIL TANK	W6	0	490.4	10	100	5
5-223-0-E	MOTOR ROOM	W6	0	336.0	10	100	5
4-162-0-E	ENGINE ROOM NO.2	C0	0	2573.3	0	0	100
4-223-0-E	MOTOR ROOM	C3	0	2.5	10	100	5
		--					
		0					

Feb 02, 1989

COMPARTMENT FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/1987)

Compartment: 5-223-0-E      MOTOR ROOM (TANK TOP LEVEL)  
Zero strength barrier above.

-----

USE: E    Machinery areas which are normally occupied.

AREA: 2013 sq.ft.    DECK HEIGHT: 8.0 ft.    VOLUME: 16,108 cu.ft.

UNACCEPTABLE LOSS: Code 2 (Major item involved in fire)  
THRESHOLD FREQUENCY OF UNACCEPTABLE LOSS: 0.0330 per ship year

FREQUENCY OF ESTABLISHED BURNING: 0.0031

FUEL LOAD: 19,242 BTUs/sq.ft.  
Cables, paint, etc, (10gpm x 6m/compartament area)

VENTILATION: 2,684 cu ft/min      EXCHANGE TIME: 6.0 min.  
VENT AREA: 1000 sq.in.      VENT HEIGHT: 70 in.

FIRE STARTED DUE TO:

	I	I	FRI	A	M
	I		Time		

Fire Origin	I	0	6	80	10
Tbar Failure	I	5	6	15	40
Dbar Failure	I	0	*	0	0

\* calculated as  $(100 - \% \text{ Heat Release}) / 100 \times$   
FRI Time or 2 min., whichever is greater.

Assumes a fuel or lube oil line rupture  
No line rupture as adjacent compartment

DETECTION:

Manual:

Occupied 0% of time in port and 15% of time at sea.

Automatic:

Rate of temperature rise detection system (RR)

Photo electric smoke detection system (P)

Flame detection system (UV or IR) (F)

FIRST AID FIRE PROTECTION:

AUTOMATED FIRE PROTECTION SYSTEMS:

- 1 Halon 1301 total flooding system - remotely actuated

MANUAL FIRE FIGHTING EQUIPMENT:

- 1 1 1/2" Seawater hand line with "all purpose nozzle" 50 ft.
- 2 1 1/2" AFFF (3%) hand line with SFL variable nozzle 50 ft.



Feb 02, 1989

BARRIER FIRE SAFETY SUMMARY  
FOR  
POLAR ICEBREAKER REPLACEMENT  
(drawings dated 5/12/87)

Compartment: 5-223-0-E

MOTOR ROOM (TANK TOP LEVEL)

Barriers (Adjoining Compts ID and Name)		Mat ID	D/H	Area- sq.ft.	Tbar	Dbar	%heat rel
5-162-0-E	ENGINE ROOM NO.2	W6	0	336.0	10	100	5
5-223-1-F	OIL TANK	W6	0	383.2	10	100	5
5-223-2-F	OIL TANK	W6	0	383.2	10	100	5
5-271-0-F	OIL TANK	W6	0	336.0	10	100	5
4-223-0-E	MOTOR ROOM	C0	0	1932.4	0	0	100
4-262-0-W	GREY/BLK WTR HOLDING TANK	C3	0	81.1	10	100	5
		--					
		0					